



Statewide Technical Assistance

JOB PERFORMANCE REPORT PROJECT FW-7-R-6

Subproject I, Job No. 1: Fisheries Program Coordination and Supervision

Subproject I, Job No. 2: Statewide Quantity Investigation

Subproject I, Job No. 3: Statewide Responsive Management

Subproject II, Job No. 1: Panhandle Region Technical Assistance

Subproject II, Job No. 2: Clearwater Region Technical Assistance

Subproject II, Job No. 3: Southwest Region Technical Assistance

Subproject II, Job No. 4: Magic Valley Region Technical Assistance

Subproject II, Job No. 5: Southeast Region Technical Assistance

Subproject II, Job No. 6: Upper Snake Region Technical Assistance

PERIOD COVERED: July 1, 1999 to June 30, 2000

BY

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JOB PERFORMANCE REPORT

State of: Idaho **Name:** STATEWIDE TECHNICAL ASSISTANCE

Project: FW-7-R-6 **Title:** Statewide Supervision And Coordination

Subproject: I **Job No.:** 1

Period Covered: July 1, 1999 to June 30, 2000

ABSTRACT

During the contract period we continued consultation with Idaho Power Company (IPC) for the relicensing of hydroelectric facilities on the Snake River, Idaho. Activities include design of protection, mitigation, and enhancement measures for Upper Salmon Falls, Lower Salmon Falls, Bliss, and C.J. Strike and study design and review for the three-dam Hells Canyon project. We also made an unsuccessful attempt at drafting a settlement agreement between Idaho Power Company and the state of Idaho for the projects at Upper Salmon Falls, Lower Salmon Falls, and Bliss.

I participated in the U.S. Fish and Wildlife Service efforts to draft a recovery plan for Bull Trout, as directed by the Federal Endangered Species Act. During my term as the Idaho representative we identified broad goals and objectives as well as the designation of recovery units within the broader Columbia River Distinct Population Segment.

Author:

Will Reid
Fishery Program Coordinator

OBJECTIVES

To supervise and coordinate Idaho Department of Fish and Game (IDFG) policy regarding water quality, water quantity, aquatic habitat alterations, hydropower licensing, and conservation of aquatic habitats.

To appraise and provide technical assistance to the executive and legislative branches of state government in matters relating to aquatic environments.

METHODS

IDFG personnel review proposals to construct, modify, or relicense hydroelectric facilities throughout the state of Idaho. Based on the best scientific information available, we recommend to the Federal Energy Regulatory Commission (FERC) measures, which will protect fish and wildlife habitat. Existing research and/or management reports provide the basis for most comments provided to the FERC. When data is lacking or outdated, we cooperate with the applicant to design studies which will assist the FERC in decision-making.

IDFG has the primary authority to manage all fish and wildlife in Idaho. Idaho Code specifically charged the IDFG to protect, preserve, and perpetuate those resources. As such, we serve as a consulting agency to other state agencies and review federal actions that may impact fish and wildlife habitat. We also assist private landowners in the design of land-use practices where they may impact habitats.

As the statewide coordinator for habitat protection, I assist regional personnel to ensure compliance and consistency with IDFG policy regarding habitat protection and mitigation.

RESULTS

Federal Energy Regulatory Commission

IPC continues efforts to obtain new licenses to operate hydropower facilities on the Snake River. At Shoshone Falls (FERC # 2778), Upper Salmon Falls (FERC # 2777), Lower Salmon Falls (FERC # 2061), and Bliss (FERC # 1975), the FERC has accepted the IPC applications and issued a number of requests for additional information (AIR).

Many of the AIRs contain specific orders from the FERC for consultation with IDFG. During the project period IDFG offered comments on the following:

AIR 1	Project Flows
AIR 2	Load Following Effects and Ramping Rates
AIR 3	Fish Entrainment
AIR 4	Fish Passage
AIR 8	Warm Water Fish Stocking
AIR 9	Spring Habitat Protection
AIR 12	Wetted Stream Bed Below Bliss Dam
AIR 16	Wetted Stream Bed Below Lower Salmon Falls Dam
AIR 17	Macrophyte Removal
AIR 19	Minimum Flows for the North Channel
AIR 21	Dissolved Gas Study at Shoshone Falls Tailrace
AIR 41	Load Following Operational Study
AIR 42	Effects of Load Following on Wildlife Habitat

At the C.J. Strike hydroelectric facility, IPC has submitted a new license application and the FERC has issued orders for additional information. IDFG has submitted comment to IPC on study plans to address water quality in and downstream of the project and minimum flow needs in the Snake River downstream of the dam.

The effort to relicense the three dam (Brownlee, Oxbow, Hells Canyon) hydroelectric projects in the Hells Canyon (FERC # 1971) have focused on new studies developed through a collaborative process which includes an array of stake holders from federal agencies, state agencies, city and county governments, and private interests. Studies underway and developed in consultation with IDFG should result in information that will aid in determining impacts to white sturgeon, resident native salmonids, non-native game fish, water quality, wildlife habitat, and recreation.

IPC has devoted a considerable amount of resources into the collection of biological data from the Snake River. However, study results have focused on existing conditions only. IPC has resisted all efforts to conduct meaningful analysis of potential impacts that may occur from future operations.

Washington Water Power (Avista) has completed efforts to relicense hydroelectric projects at Cabinet Gorge (FERC # 2058) and Noxon Rapids (FERC # 2075) on the Clark Fork River. The Avista efforts proved to be a major cooperative success with a new license issued in 1999.

PacifiCorp has completed new license applications for hydroelectric projects on the Bear River. IDFG submitted comment to PacifiCorp in which we outlined the need for enhancement of habitat for native species of cutthroat trout.

Endangered Species

I participated with U.S. Fish and Wildlife Service in efforts to draft a Bull Trout Recovery Plan as mandated by the Endangered Species Act. During the project period we designated recovery units with the Columbia River distinct population segment, prepared draft recovery unit chapters, and started the process of identifying recovery unit teams.

I also continued working with Idaho state agencies and private interests to implement the Idaho Bull Trout Conservation Plan. Idaho has completed problem assessments in all "key watersheds." The Pend Oreille Watershed Advisory Group finalized a plan for the Pend Oreille watershed.

Other watershed advisory groups have conservation partially completed. However, work on the state plan has stopped due to fears that the federal recovery plan may not be consistent with state efforts.

Water Quality

During the contract period, I continued coordination with the Idaho Division of Environmental Quality (DEQ) to implement the state of Idaho water quality protection measures. IDFG assists the DEQ by providing habitat needs of the fish and wildlife resources dependent on water quality.

Forest Practices

During the contract period, I continued participation in the Idaho Forest Practices Act Advisory Committee. Efforts during the contract period included a review of past practices, design of the 2000 audit, and submission of rule changes that will reduce pollutants resulting from forest practices.

JOB PERFORMANCE REPORT

State of: Idaho **Name:** FISHERY PROGRAM
COORDINATION

Project: FW-7-R-6 **Title:** Water Quantity
Investigations

Subproject: I **Job No.:** 2

Period Covered: July 1, 1999 to June 30, 2000

ABSTRACT

During the project period, Idaho Department of Fish and Game (IDFG) personnel supported instream flow applications on the North Fork Payette River, Teton River, and Bitch Creek. Idaho Department of Water Resources (IDWR) conducted a public hearing on the North Fork Payette River application in late 1999. They approved it and it was sent to and approved by the State Legislature in March 2000. I provided acceptable proof of beneficial use documentation for the Bitch Creek instream flow water right permit in October 1999, but was asked to provide additional information on the Teton River permit. Those data will be collected in fall 2000. Applications for the North Fork Clearwater and Little North Fork Clearwater rivers, Kelly, Cayuse, and Billingsley creeks also have been filed. No action has been taken on these applications to date. I also conducted instream flow assessments on Smith Creek and Trail Creek to determine fish habitat flows to mitigate for proposed water withdrawal projects.

I continued to represent IDFG in the ongoing Snake River Basin Adjudication (SRBA). The SRBA Court ruled on several issues involving federal reserve water right claims filed by the U.S. Forest Service and the Nez Perce Tribe. The Forest Service claims are nearly settled, but the tribal claims appear to have a ways to go. National Marine Fisheries Service and the U. S. Fish and Wildlife Service (USFWS) have recently become involved in the negotiation discussions and have brought some new issues to the table. Partial decrees have been issued for a number of IDFG water rights. To date, more than one-half of the total claims filed in the adjudication have received partial decrees.

Author:

Cindy Robertson
Fishery Staff Biologist

OBJECTIVES

To prepare recommendations for instream flow water rights for selected streams statewide; to coordinate to IDFG participation in the SRBA; and to provide IDFG comments on water quantity issues that may impact fish, wildlife, and aquatic habitat.

RESULTS

Instream Flow Program

Northern Idaho Rivers

Applications for the North Fork Clearwater River, Little North Fork Clearwater River, and Kelly and Cayuse creeks were submitted in 1998, but no action has been scheduled on the applications at this time. Public information meetings and hearings may be scheduled later in the year 2000.

Lake Pend Oreille Tributary Flow Study

In 1999, the LPO Watershed Advisory Group completed the Lake Pend Oreille (LPO) Bull Trout Conservation Plan. One of the priority activities identified in the conservation plan was to designate instream flows to protect important bull trout spawning and rearing tributaries in the LPO system. A copy of the work plan is included in Appendix 1. I provided technical assistance to the biologist in selecting an appropriate methodology for data collection, setting up staff gages and collecting discharge data. We will use the study results to make instream flow recommendations to the Idaho Water Resource Board (IWRB).

Billingsley Creek

Instream flow applications for three reaches of Billingsley Creek were presented to the IWRB in July 1999. An application was originally filed for one reach in 1991, but has been delayed because the IWRB and the local public requested additional reaches of the creek be studied for recommendations. Studies were completed in 1997, but the IWRB

requested additional flow measurements be taken to reconcile the recommendations with water availability. Flow measurements were made in summer 1999 and reported to the IWRB, but to date no further action has been taken. The reaches of stream proposed for instream flow protection may be impacted by existing claims for year-round water diversions. These claims are currently being negotiated in the SRBA, and the outcome of the negotiations will affect the quantity of water available to fill the instream flow water right applications. The recommended flows are intended to provide spawning and rearing habitat for fish, waterfowl habitat, aesthetics, and recreation on a year-round basis. The requested flows range from 5 to 100 cfs and vary throughout the year according to water availability.

Public support of the applications has been good in past years. Informational meetings and a public hearing will likely be scheduled for late 2000.

North Fork Payette River

An application for an instream flow water right on the North Fork Payette River from Upper Payette Lake downstream to Box Creek was presented to the IWRB in July 1999. The requested flows range from 35-60 cfs and are for the protection of fish habitat, aquatic life, and water quality. The flow application is the result of the Big Payette Lake Water Quality Council's request to develop recommendations for the river above Big Payette Lake. IDFG headquarters and regional personnel conducted a study in 1996 and results were reported in a report on the water quality of Big Payette Lake (DEQ 1997). IDWR conducted a public hearing in September 1999 and shortly after approved the application. They presented the approved application to the State Legislature in January 2000 and it received their approval in March. Proof of beneficial use documentation will be submitted within the next year.

Teton River and Bitch Creek

I submitted additional flow measurements to the IDWR as part of the proof of beneficial use requirement to license the instream flow water right for Bitch Creek. The measurements were taken on five separate occasions from August 1995 to November 1999. Flows ranged from 42 cfs in November 1999 to 138 cfs in August 1995. The requested minimum flow was 28 cfs. The water right permit was licensed in early 2000.

IDFG and IDWR personnel will collect flow data on the Teton River above Bitch Creek to provide proof of beneficial use for the water right permit that was issued in 1988. I

had hoped to use data collected by the U. S. Geological Survey but they did not collect data upstream of Bitch Creek.

Smith Creek

I conducted instream flow study on Smith Creek, a tributary to the South Fork Salmon River in September 1999 as part of the relicensing effort for the Smith Creek Hydropower Project. The original hydropower plant was damaged in a large flood event in early 1997, and IDFG volunteered to conduct the study to aid in setting minimum bypass flows for the project. The results of the study are included in Appendix 2.

Instream Flow Council

The Instream Flow Council (IFC) was formed in 1997 to assist state and provincial fish and wildlife management agencies in developing and administering effective instream flow programs to restore, maintain, and enhance aquatic ecosystems. The Second Biannual IFC meeting was held in Lansing, MI in May 2000. The two standing committees--a policy committee and a methods and technical standards committee--are nearing completion of their reports. The committees will continue to meet throughout 2000 and provide draft proposals to the governing council for review in early 2001. The national meeting allowed state representatives to discuss important instream flow issues and case studies in their own states. The meeting provided a forum for discussion of many ancillary instream flow issues such as water quality criteria development. The meeting also included a workshop on two-dimensional hydraulic modeling.

Snake River Basin Adjudication

The SRBA Court appointed a mediator to attempt to resolve the dispute between the state of Idaho and the Nez Perce Tribe over the tribal reserved water right claims. The mediation is concurrent with ongoing litigation of the claims. National Marine Fisheries Service (NMFS) and (USFWS) have intervened in the proceedings on the side of the tribe. It is hoped that a mediated settlement can be achieved before the cases go to trial in late 2000. Major issues raised by the NMFS and USFWS are related to land management activities on private, state, and federal land and are not water right issues per se. It is unclear how these issues can be resolved within the structure of the SRBA, but negotiations are continuing.

IDFG objected to a number of amended water right claims filed on Billingsley Creek that, if approved as amended, would allow the claimants to potentially dry up the creek in the winter. The claimants amended their original filings to include, among other uses, year-round wildlife use on water in their ditches and stock ponds. IDFG argued that wildlife use on irrigation ditches and ponds would be incidental to the intended use of the system for irrigation and that the water would better serve wildlife if it were left in the stream during the winter. Many claimants have withdrawn their wildlife claims after we objected.

Partial decrees and recommendations have been issued for numerous IDFG stockwater, irrigation, and domestic water rights in basins 01, 02, 03, 21, 25, 27, 31, 33, 34, 35, 36, 51, 61, 63, 65, 67, 71, 72, 74, 75, 77, 81, 82, 84, 85, and 86. This accounts for over half of the IDFG filings. IDWR expects the SRBA to be completed in 2005.

*

LITERATURE CITED

Division of Environmental Quality. 1997. Technical Report on the Water Quality of Big Payette Lake: An Integrated Watershed and Lake Assessment.

II. Objective __

- A. Determine minimum instantaneous stream maintenance flows necessary to preserve high quality aquatic habitat in the study streams and recommend adoption of instream water reservations by the Idaho Water Resources Board.

III. Tasks

- A.1. Estimate current mean annual discharges for the selected tributaries using existing U.S. Geological Survey hydrologic data, or collect data where lacking (build and install staff gages and collect flow data).
- A.2. Estimate minimum instantaneous flows necessary to assure persistence of a high quality aquatic environment in the selected tributaries.
- A.3. Recommend designation of minimum instantaneous maintenance flows for the study tributaries to the Idaho Water Resources Board for adoption.

IV. Methods

Where USGS hydrologic data currently exists, we will use these data to make our flow recommendations. Where USGS hydrologic data are lacking, a staff gage will be installed in the lower reaches of each tributary. Gages will be placed to sample the “undepleted” discharge of each tributary (i.e. above any water withdrawal). Where this is not possible, prior water withdrawal will be estimated and the observed discharge will be adjusted. Each gage will be read on a weekly basis. Actual discharge will be measured for each stream at the gage location using a flow meter on a bi-weekly basis. A gage height – discharge regression will be used to estimate the discharge for the weeks in which only gage height was recorded.

Mean annual discharge will be estimated from the weekly discharge estimates and the Tennant or “Montana Method” will be used to prescribe maintenance flows. The Tennant Method involves estimating the mean annual discharge of a stream and then taking a proportion of that mean annual flow as the minimum instantaneous instream flow necessary to preserve the integrity of aquatic ecosystems. This method is based on numerous biological studies conducted by the U.S. Fish and Wildlife Service used in conjunction with hydrologic data from the U.S. Geological Survey. The Tennant Method recommends using 60% of the mean annual discharge as the instantaneous flow to provide excellent to outstanding aquatic habitat for April through September, and 40% of the mean annual discharge as the instantaneous discharge that provides excellent to outstanding aquatic habitat from October to March. We propose to apply these standards to the 10 high priority LPO tributaries in order to recommend minimum instantaneous instream maintenance flows.

V. Anticipated Results and Discussion

Probability of success

The probability success for prescribing the maintenance flows is good. Success is dependent on our ability to record and estimate discharges accurately. Successful application of the recommended maintenance flows is dependent on current water allocations within each tributary drainage and designation of the instream flow reservations by the Idaho Water Resources Board. Because this study was based on recommendations formed by a diverse community based Watershed Advisory Group authorized by previous Idaho Governor Batt, we believe it is likely that the study recommendations will result in minimum flow designations.

Reporting

Flow data will be collected from April 2000 through March 2001. Data will be analyzed and a report will be included as a chapter in the 2000 LPO Avista Project Annual Report, due March 31, 2001.

Use of Results

These results will be used to recommend minimum instantaneous instream maintenance flows on study streams to the Idaho Water Resources Board.

VI. Attachments

Table 1. Timeline for completing project tasks.

Objective	Task	Timeline
A	A.1.	March 2000 – March 2001
	A.2.	March 2001
	A.3.	April 2001

Table 2. Project budget and personnel requests.

Item	Cost share	P,M,&E Budget Request	P,M,&E Source
Personnel (1 person for 10 mos @ 12 hrs/wk	IDFG - \$4,000 (280 hrs)	\$14.10/hr ² * 224 hrs (\$3,159)	Idaho Tributary Acquisition and Enhancement Fund (ITAE)
Use of flow meter	IDFG - \$2,500		
Gage materials and supplies	\$3,000	3,000	ITAE

Total P, M, & E budget request:

Total plus 10% miscellaneous: \$6.775

SMITH CREEK HYDROPOWER PROJECT FISH HABITAT STUDY

INTRODUCTION

Idaho Department of Fish and Game personnel collected data on Smith Creek during September 15-17, 1999. The stream was divided into two reaches: Reach 1 extended from the mouth to the road bridge and Reach 2 extended from the road bridge up to the side drainage that "blew out" in 1997. Data collected included fish species and size composition and relative abundance; habitat type and frequency of occurrence; and stream channel and water column characteristics, such as channel width, wetted width, dominant substrate type, relative streambed elevations, mean column velocity, depth, and relative water surface elevations. Data were entered into the RHABSIM computer programs for analysis.

HABITAT TYPE AND OCCURRENCE

Habitat type composition and frequency of occurrence were determined by pacing the stream from beginning to end of each reach and recording the habitat type every 50 feet (approximately 20 paces). Habitat types were delineated according to the R1/R4 Fish and Fish Habitat Standard Inventory Procedures Handbook (Overton et al. 1997). Reach 1 was approximately 2000 feet in length and Reach 2 was slightly more than 1300 feet long. Results of the habitat survey are found in Tables 1 and 2.

FISH SPECIES COMPOSITION

Fish species composition, relative abundance, and size class distribution data were collected by snorkeling selected habitat types in both stream reaches. Originally, I planned to snorkel every fifth habitat type encountered, (i.e. every fifth pool, every fifth riffle, etc.). However, I found no fish in any of the riffle habitats that we snorkeled. Therefore, I snorkeled additional pools to get a truer view of fish abundance. Fish data are presented in Tables 3 and 4. Only two species were observed, cutthroat and rainbow (presumably steelhead) trout. Steelhead/rainbow trout were by far the more abundant species observed.

No young-of-the-year and only four 2 to 4 inch fish were observed, however the available habitat was not ideal for small fish. Generally, small fish prefer areas of low water velocity (< 0.25 fps) and depths exceeding 0.25 feet (Cochner and Elms-Cockrum, 1986). Areas matching these criteria were nearly nonexistent in either reach.

REFERENCES

Cochnauer, Tim and Terry Elms-Cockrum, 1986. Probability-of-use curves for selected Idaho fish species. Project F-71-R-10, Job No. 1-a, Idaho Department of Fish and Game, Boise, ID.

Overton, C. Kerry, Sherry P. Wollrab, Bruce C. Roberts, and Michael A Radko, 1997. R1/R4 (Northern Intermountain Regions) fish and fish habitat standards inventory procedures handbook. General Technical Report INT-GTR-346, Forest Service, Intermountain Research Station, Ogden, UT.

Table 1. Habitat types, characteristics, and frequency of occurrence for Reach 1, Smith Creek, September 16, 1999.

Habitat Type	Avg. Length (ft)	Width (ft)	Percent Occurrence
HGR	30.2	8.0	52.5
LGR	25.4	8.4	12.4
STP	40.7	11.0	17.5
CAS	15.7	8.0	7.5
PLP	13.3	7.9	7.5
PW	40.0	6.0	2.5

HGR = High gradient riffle; LGR = Low gradient riffle; STP = Step-pool; CAS = Cascade; PLP = Plunge pool; PW = Pocket water

Table 2. Habitat types, characteristics, and frequency of occurrence for Reach 2, Smith Creek, September 16, 1999.

Habitat Type	Avg. Length (ft)	Width (ft)	Percent Occurrence
HGR	35.2	8.0	36.0
LGR	38.8	8.3	28.5
STP	42.3	10.8	28.5
CAS	12.0	15.0	7.0

HGR = High gradient riffle; LGR = Low gradient riffle; STP = Step-pool; CAS = Cascade

Table 3. Fish species composition, relative abundance, and size class distribution for Reach 1, Smith Creek, September 15, 1999.

Habitat Type	Species	Size (mm)			
		0-50	51-100	101-150	151+
Riffle			No fish		
Pool	CTT	-	-	1	-
Riffle			No fish		
Pool	STH	-	1	1	1
Pool	STH	-	2	1	2
Riffle			No fish		
Riffle			No fish		
Riffle			No fish		
Pool	STH	-	-	1	2
Riffle			No fish		
Pool	STH	-	-	1	1

CTT = Cutthroat trout; STH = Steelhead trout

Table 4. Fish species composition, relative abundance and size class distribution for Reach 2, Smith Creek, September 15, 1999.

Habitat Type	Species	Size (mm)			
		0-50	51-100	101-150	151+
Riffle			No fish		
Pool	STH	-	1	1	-
Riffle			No fish		
Riffle			No fish		
Pool	STH	-	-	2	1
Pool	STH	-	-	-	2

STH = Steelhead trout

Table 5. Predicted water surface elevations for transects in Reaches 1 and 2, Smith Creek.

Transect	Simulated Flows (cfs)						
	1.0	1.5	2.0	2.5	3.5	4.5	5.0
R1-LGR	96.34	96.39	96.42	96.45	96.50	96.54	96.56
R1-HGR	98.35	98.38	98.42	98.44	98.49	98.52	98.54
R1-POOL 1	100.75	100.85	100.92	100.97	101.07	101.14	101.18
R1-POOL 2	103.19	103.30	103.39	103.46	103.57	103.66	103.20
R1-POOL 3	96.53	96.69	96.81	96.92	97.09	97.23	97.29
R2-HGR	94.48	94.55	--	94.66	94.74	94.81	--
R2-LGR	97.63	97.70	--	97.77	97.84	97.88	--
R2-POOL	97.10	97.19	--	97.31	97.41	97.49	--

Table 6. Velocity distributions for simulated flows in Smith Creek, low gradient riffle, reach 1.

[illegible]

Table 6. Velocity distributions for simulated flows in Smith Creek, high gradient riffle, reach 1.

STATION	Wet Gutter	FLOW:		1.00	1.50	2.00	2.25	2.50	3.50	4.50	5.00
		WGL:	WGL:								
1.0	101.52	98.35	98.38	16	17	17	17	18	18	18	18
3.3	100.36										
5.0	99.19										
6.6	98.36										
9.0	98.33	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.03
6.4	98.13	0.06	0.08	0.10	0.10	0.11	0.14	0.16	0.16	0.16	0.18
7.0	98.03	0.06	0.08	0.10	0.10	0.11	0.14	0.16	0.16	0.16	0.17
7.5	98.03	0.90	1.14	1.36	1.46	1.55	1.90	2.20	2.20	2.20	2.34
8.0	98.03	2.15	2.74	3.25	3.48	3.71	4.54	5.27	5.27	5.27	5.60
8.5	98.03	1.94	2.47	2.93	3.14	3.35	4.09	4.75	4.75	4.75	5.05
9.0	98.13	0.15	0.16	0.19	0.21	0.22	0.28	0.33	0.33	0.33	0.35
9.5	98.03	0.63	0.63	0.64	0.64	0.65	0.66	0.68	0.07	0.07	0.08
10.1	98.03	0.04	0.06	0.08	0.08	0.09	0.12	0.14	0.14	0.14	0.15
10.6	98.03	0.02	0.03	0.04	0.04	0.05	0.06	0.07	0.07	0.07	0.08
11.0	98.13	1.11	1.47	1.78	1.92	2.06	2.57	3.03	3.03	3.03	3.24
11.5	98.13	0.25	0.33	0.40	0.44	0.47	0.58	0.69	0.69	0.69	0.74
12.0	98.23	0.16	0.15	0.19	0.21	0.23	0.29	0.35	0.35	0.35	0.38
12.5	98.23	0.05	0.07	0.09	0.09	0.10	0.13	0.16	0.16	0.16	0.17
13.0	98.23	1.06	1.57	1.99	2.18	2.37	3.08	3.71	3.71	3.71	4.00
13.6	98.26	0.04	0.07	0.09	0.10	0.11	0.15	0.19	0.15	0.19	0.21
14.0	98.43					0.02	0.06	0.10	0.06	0.10	0.12
15.0	99.27										
20.0	99.47										
24.0	100.26										
25.0	101.16										
26.7	101.66										
Ag. L. 100% VGL:		0.50	0.61	0.74	0.80	0.81	1.01	1.19	1.01	1.19	1.27

Table 6. Velocity distributions for simulated flows in Smith Creek, pool 1, reach 1.

STATION	Wet Cells:	FLOW:									
		WSL:									
1.0	103.05	1.00	1.50	2.00	2.20	2.50	3.50	4.50	5.00		
4.0	101.26	100.75	100.85	100.92	100.94	100.97	101.07	101.14	101.18		
5.0	101.37	11	16	16	16	17	18	18	18		
6.0	100.84										
10.1	100.84		0.00	0.01	0.01	0.01	0.02	0.03	0.03		
10.5	100.74	0.01	0.00	0.01	0.01	0.01	0.02	0.03	0.03		
11.3	100.54	0.07	0.06	0.09	0.10	0.12	0.16	0.20	0.22		
11.6	100.54	0.10	0.11	0.13	0.14	0.15	0.20	0.23	0.25		
12.0	100.84		0.15	0.18	0.19	0.21	0.27	0.32	0.34		
13.0	100.14		0.07	0.41	0.50	0.63	1.01	1.33	1.48		
13.5	100.14	0.35	0.44	0.50	0.52	0.56	0.67	0.77	0.81		
14.0	100.04	0.97	1.13	1.35	1.71	1.50	1.80	2.06	2.19		
14.5	100.19	1.02	1.38	1.45	1.51	1.61	1.91	2.18	2.31		
15.0	100.34	0.77	0.98	1.12	1.18	1.26	1.51	1.74	1.85		
15.5	100.84	0.14	0.18	0.21	0.22	0.24	0.29	0.33	0.35		
16.0	100.44		0.01	0.09	0.11	0.14	0.22	0.29	0.33		
16.5	100.34	0.03	0.04	0.05	0.05	0.05	0.07	0.08	0.09		
17.0	100.54	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.06		
17.5	101.34		0.02	0.03	0.03	0.03	0.04	0.05	0.05		
18.0	100.84		0.00	0.01	0.01	0.01	0.02	0.03	0.03		
18.5	101.04						0.00	0.01	0.02		
19.3	100.94					0.01	0.01	0.02	0.02		
20.0	101.28										
23.0	102.11										
23.7	103.12	0.31	0.28	0.35	0.38	0.39	0.46	0.54	0.58		
Average Velocity:											

Table 6. Velocity distributions for simulated flows in Smith Creek, low gradient riffle, reach 1.

STATION	FLOW:		WSL:		Wet Cells:		2.00		2.30		2.50		3.50		4.50		5.00	
	1.00	96.34	1.50	96.39	2.00	96.42	2.30	96.44	2.50	96.45	3.50	4.50	5.00					
1.0	97.79	13	13	14	14	14	14	14	14	14	14	14	14					
5.0	97.08																	
10.0	96.76																	
15.0	97.34																	
20.5	96.34																	
21.0	96.34																	
21.5	96.34																	
22.0	96.19																	
22.5	96.94																	
23.0	95.94																	
23.5	96.04																	
24.0	96.14																	
24.5	96.09																	
25.0	96.19																	
25.5	96.14																	
26.0	96.04																	
26.5	96.24																	
30.0	96.39																	
35.0	99.03																	
35.5	99.08																	
Average Vel:		0.60	0.79	0.88	0.96	1.01	1.24	1.44	1.53									

Table 6. Velocity distributions for simulated flows in Smith Creek, high gradient riffle, reach 1.

FLOW:		STATION		Wet Cells:		ELEV		Wet Cells:		ELEV		Wet Cells:		ELEV	
1.00	1.50	2.00	2.25	2.50	3.50	4.50	5.00	1.00	1.50	2.00	2.25	2.50	3.50	4.50	5.00
98.35	98.38	98.42	98.43	98.44	98.49	98.52	98.54	98.35	98.38	98.42	98.43	98.44	98.49	98.52	98.54
16	17	17	17	18	18	18	18	16	17	17	17	18	18	18	18

Table 6. Velocity distributions for simulated flows in Smith Creek, pool 1, reach 1.

STATION	Wet Cells:	FLOW:									
		WSL:		2.00		2.20		2.50		3.50	
		1.00	1.50	2.00	2.20	2.50	3.50	4.50	5.00		
1.0	103.05	100.75	100.85	100.92	100.94	100.97	101.07	101.14	101.18		
4.0	101.26	11	16	16	16	17	18	18	18		
9.0	101.27										
9.9	100.84										
10.1	100.84										
10.5	100.74	0.01	0.00	0.01	0.01	0.01	0.02	0.03	0.03		
11.3	100.54	0.07	0.06	0.09	0.10	0.12	0.16	0.20	0.22		
11.6	100.54	0.10	0.11	0.13	0.14	0.15	0.20	0.23	0.25		
12.0	100.84		0.07	0.41	0.50	0.63	1.01	1.33	1.48		
13.0	100.14	0.35	0.44	0.50	0.52	0.56	0.67	0.77	0.81		
13.5	100.14	0.93	1.18	1.35	1.41	1.50	1.80	2.06	2.19		
14.0	100.04	1.02	1.28	1.45	1.51	1.61	1.91	2.18	2.31		
14.5	100.19	0.77	0.98	1.12	1.18	1.26	1.51	1.74	1.85		
15.0	100.24	0.14	0.18	0.21	0.22	0.24	0.29	0.33	0.35		
15.5	100.84		0.01	0.09	0.11	0.14	0.22	0.29	0.33		
16.0	100.44	0.03	0.04	0.05	0.05	0.05	0.07	0.08	0.09		
16.5	100.34	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.06		
17.0	100.54	0.02	0.02	0.03	0.03	0.03	0.04	0.05	0.05		
17.5	101.34		0.00	0.01	0.01	0.01	0.02	0.03	0.03		
18.0	100.84						0.00	0.01	0.02		
18.5	101.04					0.01	0.01	0.02	0.02		
19.3	100.94										
20.0	101.28										
22.0	102.11										
23.7	103.12	0.31	0.28	0.35	0.38	0.39	0.46	0.54	0.58		
Average Vel:											

Table 6. Velocity distributions for simulated flows in Smith Creek, pool3, reach 1.

STATION		FLOW:		WGL:		Wet Cells:		ELEV	
		1.00	1.50	2.00	2.50	2.87	3.50	4.50	5.00
		96.53	96.69	96.81	96.92	96.99	97.09	97.23	97.29
		13	14	16	19	19	19	20	20
1.0	99.13				0.00	0.01	0.02	0.03	0.03
3.0	97.51				0.05	0.05	0.06	0.07	0.07
6.0	96.89			0.04	0.05	0.05	0.06	0.07	0.07
6.5	95.99	0.02	0.03	0.04	0.05	0.05	0.06	0.07	0.07
7.0	95.99	0.02	0.03	0.04	0.06	0.06	0.07	0.08	0.08
7.5	95.79	0.03	0.04	0.05	0.09	0.10	0.11	0.13	0.14
8.0	95.79	0.05	0.07	0.08	0.09	0.10	0.11	0.13	0.14
8.5	95.69	0.03	0.03	0.04	0.05	0.05	0.06	0.06	0.07
9.0	95.59	0.27	0.35	0.41	0.47	0.51	0.56	0.65	0.69
9.5	95.39	0.59	0.74	0.86	0.97	1.04	1.15	1.32	1.39
10.0	95.49	0.57	0.72	0.85	0.96	1.03	1.14	1.31	1.38
10.5	95.59	0.39	0.50	0.59	0.67	0.72	0.80	0.92	0.98
11.0	95.99	0.06	0.08	0.09	0.11	0.12	0.14	0.16	0.17
11.5	95.99	0.04	0.05	0.06	0.07	0.08	0.09	0.11	0.11
12.0	96.34	0.05	0.09	0.12	0.15	0.17	0.20	0.24	0.26
12.5	96.39	0.05	0.10	0.14	0.18	0.20	0.24	0.29	0.31
13.0	96.59		0.05	0.10	0.14	0.17	0.21	0.27	0.29
13.5	96.79			0.03	0.12	0.16	0.22	0.31	0.35
14.0	96.79			0.03	0.09	0.12	0.17	0.23	0.26
14.5	96.89				0.04	0.10	0.17	0.26	0.30
15.0	96.89				0.00	0.01	0.02	0.03	0.03
16.0	97.18							0.01	0.01
18.0	97.53								
21.0	99.33								
24.0	98.20								
26.7	98.59								
Average Wet:		0.17	0.21	0.22	0.22	0.25	0.29	0.33	0.35

Table 6. Velocity distributions for simulated flows in Smith Creek, pool 2, reach 1.

STATION	Wet Cells:	FLOW:									
		1.00	1.50	2.00	2.30	2.50	3.50	4.50	5.00		
	ELEV	103.19	103.30	103.39	103.43	103.46	103.57	103.66	103.70		
1.0	104.52	14	17	24	24	24	24	24	24		
3.0	104.37										
5.0	104.84										
7.5	103.33										
8.0	103.33										
8.5	103.18	0.02	0.11	0.17	0.19	0.21	0.28	0.34	0.37	0.03	
9.0	102.88	0.11	0.14	0.17	0.18	0.19	0.23	0.26	0.28	0.03	
9.5	102.83	0.11	0.14	0.16	0.17	0.18	0.21	0.25	0.26		
10.0	102.63	0.07	0.09	0.10	0.10	0.11	0.13	0.14	0.15		
10.5	102.48	0.12	0.14	0.16	0.17	0.17	0.20	0.22	0.23		
11.0	102.43	0.30	0.34	0.38	0.40	0.41	0.47	0.52	0.55		
11.5	102.53	0.27	0.31	0.35	0.37	0.38	0.44	0.49	0.52		
12.0	102.73	1.46	1.76	2.01	2.15	2.24	2.63	2.98	3.14		
12.5	102.78	1.35	1.66	1.91	2.04	2.13	2.52	2.87	3.03		
13.0	102.73	0.06	0.07	0.08	0.08	0.09	0.10	0.12	0.12		
13.5	102.73	0.08	0.10	0.11	0.12	0.12	0.15	0.16	0.17		
14.0	102.83	0.03	0.04	0.05	0.05	0.05	0.06	0.07	0.08		
14.5	103.03	0.10	0.14	0.18	0.20	0.21	0.26	0.31	0.33		
15.0	103.23		0.06	0.10	0.11	0.13	0.18	0.22	0.24		
15.5	103.38			0.01	0.05	0.07	0.13	0.18	0.20		
16.0	103.33	0.04		0.04	0.06	0.07	0.11	0.15	0.16		
16.5	103.18		0.20	0.30	0.34	0.37	0.50	0.61	0.66		
17.0	103.23		0.12	0.21	0.25	0.27	0.38	0.47	0.51		
17.5	103.28		0.06	0.16	0.20	0.23	0.34	0.43	0.48		
18.0	103.33			0.02	0.02	0.03	0.05	0.06	0.07		
18.6	103.33			0.02	0.02	0.03	0.05	0.06	0.07		
19.0	103.38			0.00	0.01	0.01	0.03	0.04	0.04		
19.9	105.03	0.30	0.32	0.28	0.31	0.32	0.40	0.46	0.49		
Average Vel:											

Table 6. Velocity distributions for simulated flows in Smith Creek, low gradient riffle, reach 2.

3000	100	100	100	100	100	100
1000	100	100	100	100	100	100
500	100	100	100	100	100	100
250	100	100	100	100	100	100
125	100	100	100	100	100	100
62.5	100	100	100	100	100	100
31.25	100	100	100	100	100	100
15.625	100	100	100	100	100	100
7.8125	100	100	100	100	100	100
3.90625	100	100	100	100	100	100
1.953125	100	100	100	100	100	100
0.9765625	100	100	100	100	100	100
0.48828125	100	100	100	100	100	100
0.244140625	100	100	100	100	100	100
0.1220703125	100	100	100	100	100	100
0.06103515625	100	100	100	100	100	100
0.030517578125	100	100	100	100	100	100
0.0152587890625	100	100	100	100	100	100
0.00762939453125	100	100	100	100	100	100
0.003814697265625	100	100	100	100	100	100
0.0019073486328125	100	100	100	100	100	100
0.00095367431640625	100	100	100	100	100	100
0.000476837158203125	100	100	100	100	100	100
0.0002384185791015625	100	100	100	100	100	100
0.00011920928955078125	100	100	100	100	100	100
0.000059604644775390625	100	100	100	100	100	100
0.0000298023223876953125	100	100	100	100	100	100
0.00001490116119384765625	100	100	100	100	100	100
0.000007450580596923828125	100	100	100	100	100	100
0.0000037252902984619140625	100	100	100	100	100	100
0.00000186264514923095703125	100	100	100	100	100	100
0.000000931322574615478515625	100	100	100	100	100	100
0.0000004656612873077392578125	100	100	100	100	100	100
0.00000023283064365386962890625	100	100	100	100	100	100
0.000000116415321826934814453125	100	100	100	100	100	100
0.0000000582076609134674072265625	100	100	100	100	100	100
0.00000002910383045673370361328125	100	100	100	100	100	100
0.000000014551915228366851806640625	100	100	100	100	100	100
0.0000000072759576141834259033203125	100	100	100	100	100	100
0.00000000363797880709171295166015625	100	100	100	100	100	100
0.000000001818989403545856475830078125	100	100	100	100	100	100
0.0000000009094947017729282379150390625	100	100	100	100	100	100
0.00000000045474735088646411895751953125	100	100	100	100	100	100
0.000000000227373675443232059478759765625	100	100	100	100	100	100
0.0000000001136868377216160297393798828125	100	100	100	100	100	100
0.00000000005684341886080801486968994140625	100	100	100	100	100	100
0.00000000002842170943040400743484497070	100	100	100	100	100	100

STATION	ELEV							
1.0	100.10							
3.0	99.25							
5.0	98.70							
6.5	98.04							
8.0	97.77					0.34	0.52	
8.5	97.62	0.09	0.30	0.39	0.51	0.75	0.91	
9.0	97.67		0.30	0.31	0.01	0.02	0.02	
9.5	97.67		0.04	0.03	0.10	0.16	0.20	
10.0	97.67		0.21	0.34	0.50	0.80	1.02	
10.5	97.67		0.21	0.34	0.50	0.80	1.02	
11.0	97.67		0.21	0.34	0.50	0.80	1.02	
11.5	97.57	0.33	0.58	0.70	0.85	1.13	1.41	
12.0	97.57	0.99	1.74	2.09	2.56	3.54	4.23	
12.5	97.47	0.49	0.67	0.76	0.89	1.15	1.34	
13.0	96.97	0.14	0.32	0.42	1.57	1.87	2.08	
13.5	97.17	0.14	0.32	0.42	1.97	2.39	2.69	
14.0	97.07	0.14	0.32	0.42	2.18	1.40	1.66	
14.5	97.07	0.14	0.32	0.42	0.90	0.90	1.03	
15.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
15.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
16.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
16.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
17.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
17.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
18.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
18.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
19.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
19.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
20.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
20.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
21.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
21.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
22.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
22.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
23.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
23.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
24.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
24.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
25.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
25.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
26.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
26.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
27.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
27.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
28.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
28.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
29.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
29.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
30.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
30.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
31.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
31.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
32.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
32.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
33.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
33.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
34.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
34.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
35.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
35.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
36.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
36.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
37.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
37.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
38.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
38.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
39.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
39.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
40.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
40.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
41.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
41.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
42.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
42.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
43.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
43.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
44.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
44.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
45.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
45.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
46.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
46.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
47.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
47.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
48.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
48.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
49.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
49.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
50.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
50.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
51.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
51.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
52.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
52.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
53.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
53.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
54.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
54.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
55.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
55.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
56.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
56.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
57.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
57.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
58.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
58.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
59.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
59.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
60.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
60.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
61.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
61.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
62.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
62.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
63.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
63.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
64.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
64.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
65.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
65.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
66.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
66.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
67.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
67.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
68.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
68.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
69.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
69.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
70.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
70.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
71.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
71.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
72.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
72.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
73.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
73.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
74.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
74.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
75.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
75.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
76.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
76.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
77.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
77.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
78.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
78.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
79.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
79.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
80.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
80.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
81.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
81.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
82.0	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
82.5	97.07	0.14	0.32	0.42	0.90	0.90	0.90	
83.0	97.07	0.14	0.3					

Table 6. Velocity distributions for simulated flows in Smith Creek,
high gradient riffle, reach 2.

	FLOW:	1.00	1.50	1.80	2.50	3.50	4.50
	WSL:	94.48	94.55	94.59	94.66	94.74	94.81
	Wet Cells:	11	13	14	14	14	14
STATION	ELEV						
2.7	97.69						
3.6	94.49		0.01	0.01	0.02	0.02	0.03
4.0	94.44	0.01	0.03	0.04	0.06	0.08	0.10
4.5	94.19	0.33	0.44	0.49	0.62	0.77	0.91
5.0	94.19	0.13	0.18	0.20	0.25	0.31	0.37
5.5	94.09	0.58	0.75	0.83	1.02	1.25	1.46
6.0	93.94	1.20	1.50	1.66	1.99	2.40	2.76
6.5	93.89	1.00	1.24	1.37	1.63	1.96	2.25
7.0	94.09	0.79	1.02	1.15	1.40	1.72	2.00
7.5	94.19	0.43	0.58	0.66	0.82	1.03	1.21
8.0	94.19	0.10	0.13	0.15	0.19	0.24	0.28
8.5	94.34	0.07	0.10	0.12	0.16	0.21	0.26
9.0	94.44	0.08	0.18	0.23	0.34	0.47	0.58
9.2	94.49		0.07	0.10	0.16	0.23	0.29
10.0	94.59				0.09	0.16	0.23
12.0	97.47						
Average Vel:		0.43	0.45	0.54	0.62	0.78	0.91

Table 6. Velocity distributions for simulated flows in Smith Creek, pool, reach 2.

		FLOW:	1.00	1.50	1.80	2.50	3.50	4.50
		WSL:	97.10	97.19	97.23	97.31	97.41	97.49
		Wet Cells:	16	18	19	19	19	21
STATION	ELEV							
4.5	99.38							
5.5	98.75							
6.5	97.65							
8.0	97.64							
9.0	97.23							
9.5	97.13		0.03	0.05	0.08	0.11	0.14	
10.0	97.03	0.05	0.08	0.10	0.13	0.18	0.21	
10.5	97.13		0.03	0.05	0.08	0.11	0.14	
11.0	96.88	0.03	0.04	0.05	0.06	0.08	0.09	
11.5	96.78	0.05	0.06	0.07	0.08	0.10	0.11	
12.0	96.73	0.09	0.11	0.12	0.14	0.17	0.19	
12.5	96.93	0.57	0.79	0.90	1.13	1.40	1.65	
13.0	96.93	0.16	0.22	0.25	0.31	0.39	0.46	
13.5	96.63	0.22	0.26	0.26	0.32	0.38	0.43	
14.0	96.83	1.93	2.44	2.70	3.26	3.94	4.55	
14.5	96.63	1.10	1.30	1.40	1.62	1.90	2.14	
15.0	96.23	0.08	0.09	0.10	0.11	0.13	0.14	
15.5	96.63	0.22	0.26	0.29	0.32	0.38	0.43	
16.0	96.63	0.24	0.28	0.30	0.35	0.41	0.46	
16.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
17.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
17.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
18.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
18.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
19.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
19.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
20.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
20.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
21.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
21.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
22.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
22.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
23.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
23.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
24.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
24.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
25.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
25.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
26.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
26.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
27.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
27.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
28.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
28.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
29.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
29.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
30.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
30.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
31.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
31.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
32.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
32.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
33.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
33.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
34.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
34.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
35.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
35.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
36.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
36.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
37.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
37.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
38.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
38.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
39.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
39.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
40.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
40.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
41.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
41.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
42.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
42.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
43.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
43.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
44.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
44.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
45.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
45.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
46.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
46.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
47.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
47.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
48.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
48.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
49.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
49.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
50.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
50.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
51.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
51.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
52.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
52.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
53.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
53.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
54.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
54.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
55.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
55.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
56.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
56.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
57.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
57.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
58.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
58.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
59.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
59.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
60.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
60.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
61.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
61.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
62.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
62.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
63.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
63.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
64.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
64.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
65.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
65.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
66.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
66.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
67.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
67.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
68.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
68.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
69.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
69.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
70.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
70.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
71.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
71.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
72.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
72.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
73.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
73.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
74.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
74.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
75.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
75.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
76.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
76.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
77.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
77.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
78.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
78.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
79.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
79.5	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
80.0	96.73	0.27	0.31	0.33	0.37	0.42	0.47	
80.5	96.73							

Table 7. Velocity adjustment factors for simulated flows for Smith Creek.

Transect	Simulated Flows (cfs)						
	1.0	1.5	2.0	2.5	3.5	4.5	5.0
R1-LGR	0.88	0.97	1.05	1.12	1.24	1.34	1.38
R1-HGR	0.75	0.88	0.99	1.09	1.24	1.36	1.42
R1-POOL 1	0.79	0.92	0.98	1.05	1.16	1.27	1.31
R1-POOL 2	0.93	0.97	1.01	1.05	1.13	1.19	1.22
R1-POOL 3	1.71	0.81	0.90	0.96	1.06	1.15	1.19
R2-HGR	0.82	0.94	--	1.11	1.26	1.36	--
R2-LGR	0.92	0.97	--	1.06	1.14	1.20	--
R2-POOL	0.83	0.90	--	1.01	1.14	1.23	--

Figure 2. Weighted Usable Area for cutthroat and steelhead trout in Smith Creek, high gradient reach 1.

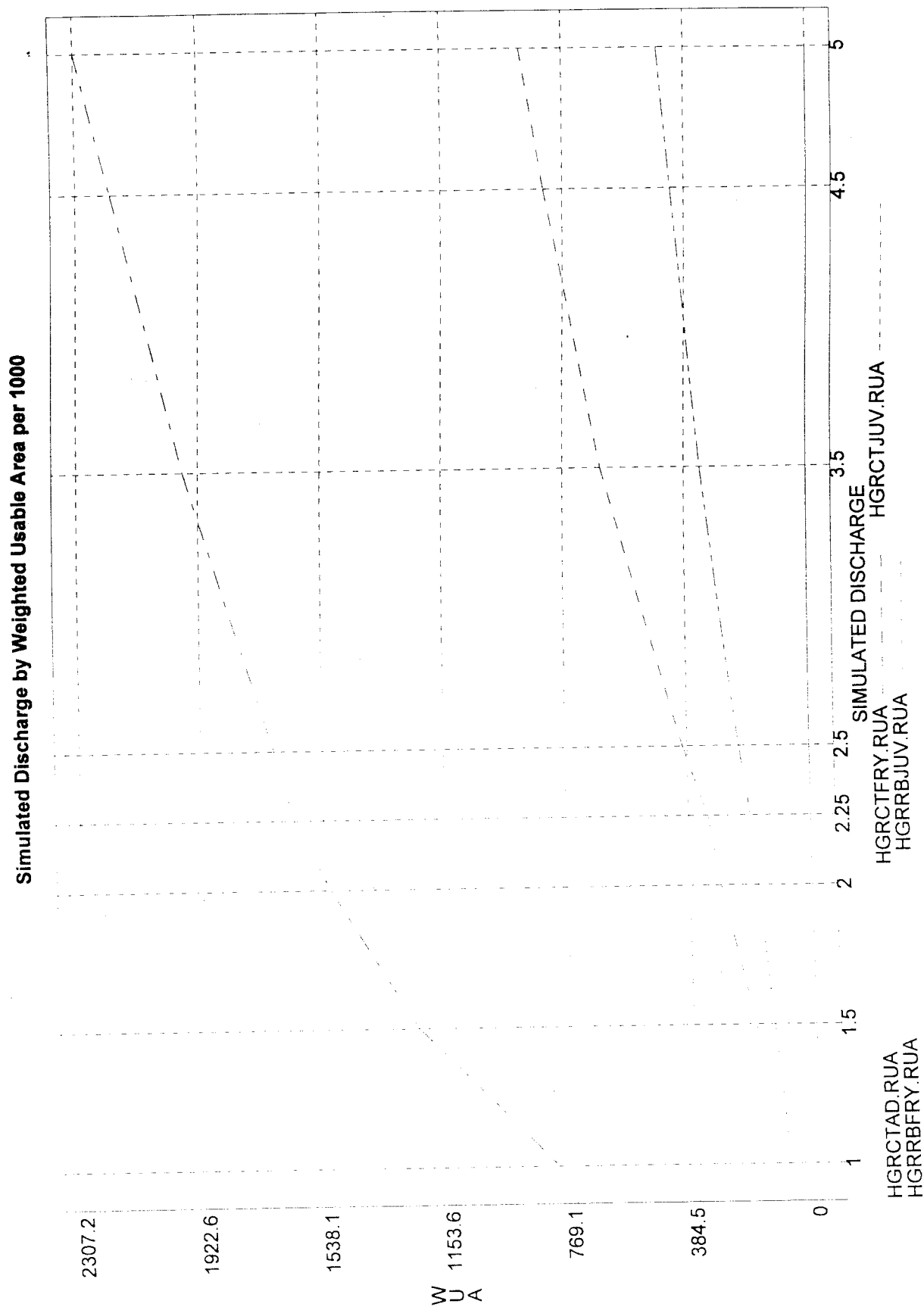


Figure 1. Weighted Usable Area for cutthroat and steelhead trout in Smith Creek, low gradient riirre, reach 1.

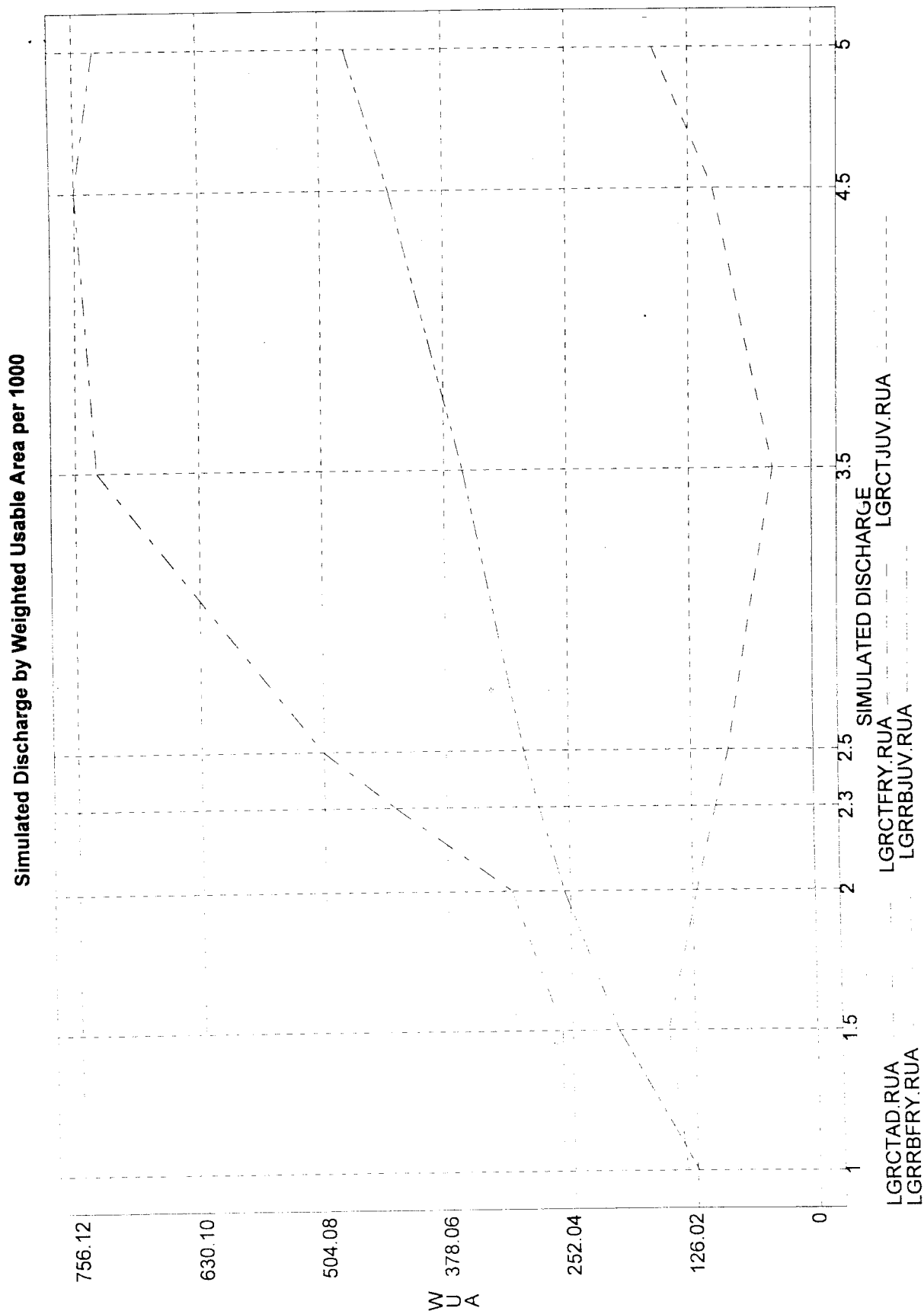


Figure 3. Weighted Usable Area for cutthroat and steelhead trout in Smith Creek, pool 1, reach 1.

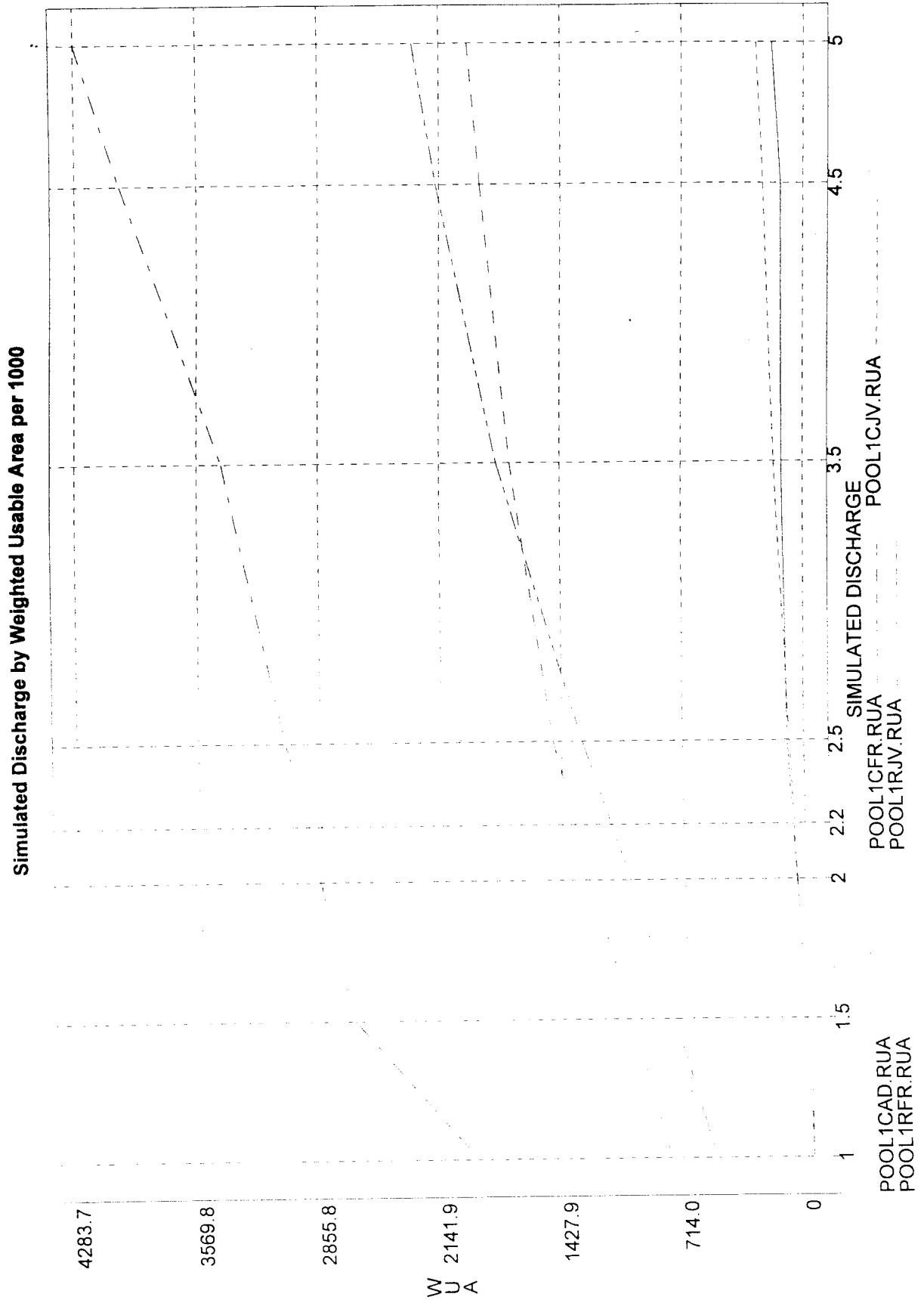


Figure 4. Weighted Usable Area for cutthroat and steelhead trout in Smith Creek, pool 2, reach 1.

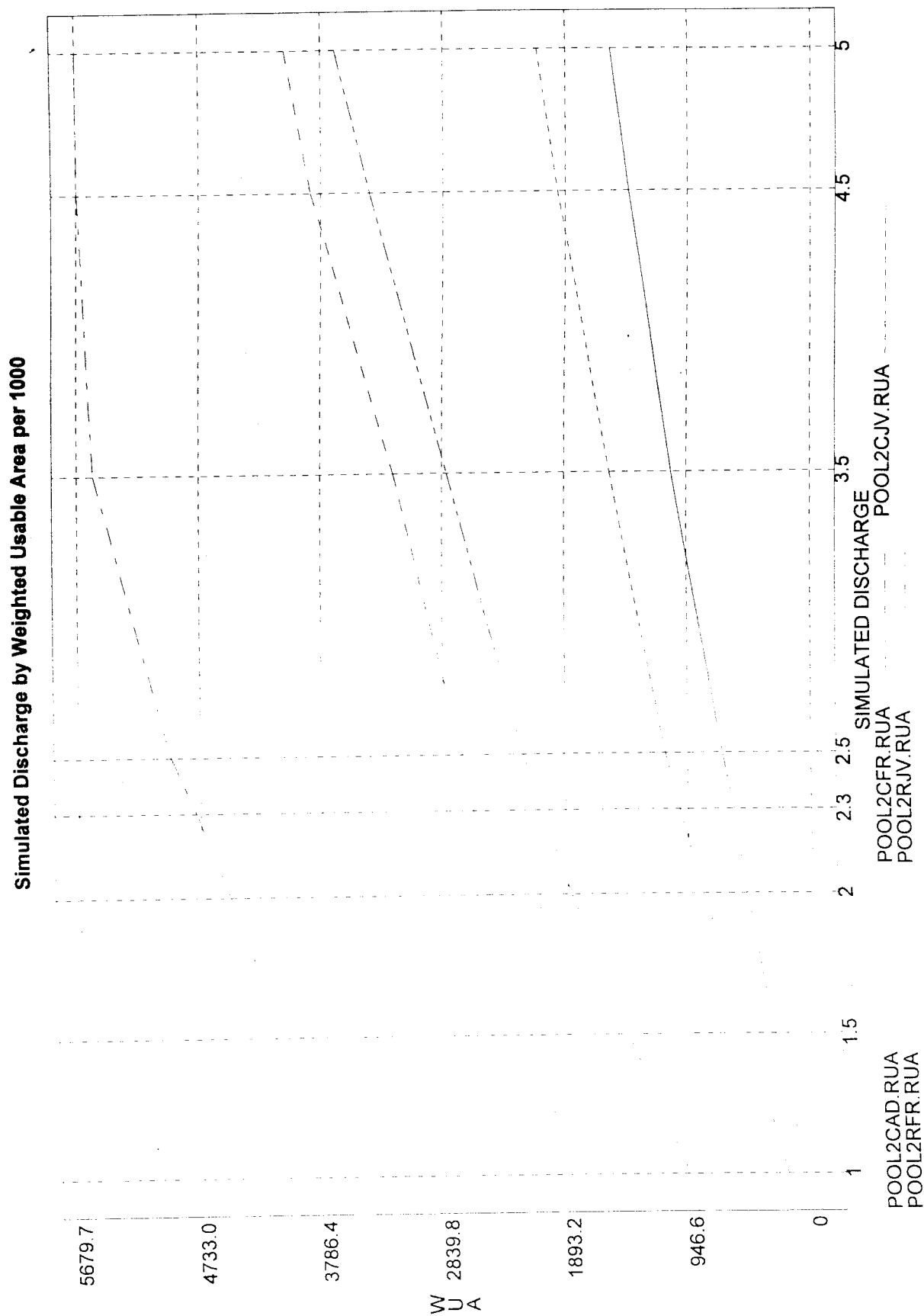


Figure 6. Weighted Usable Area for cutthroat and steelhead trout in Smith Creek, high gradient riffle, reach 2.

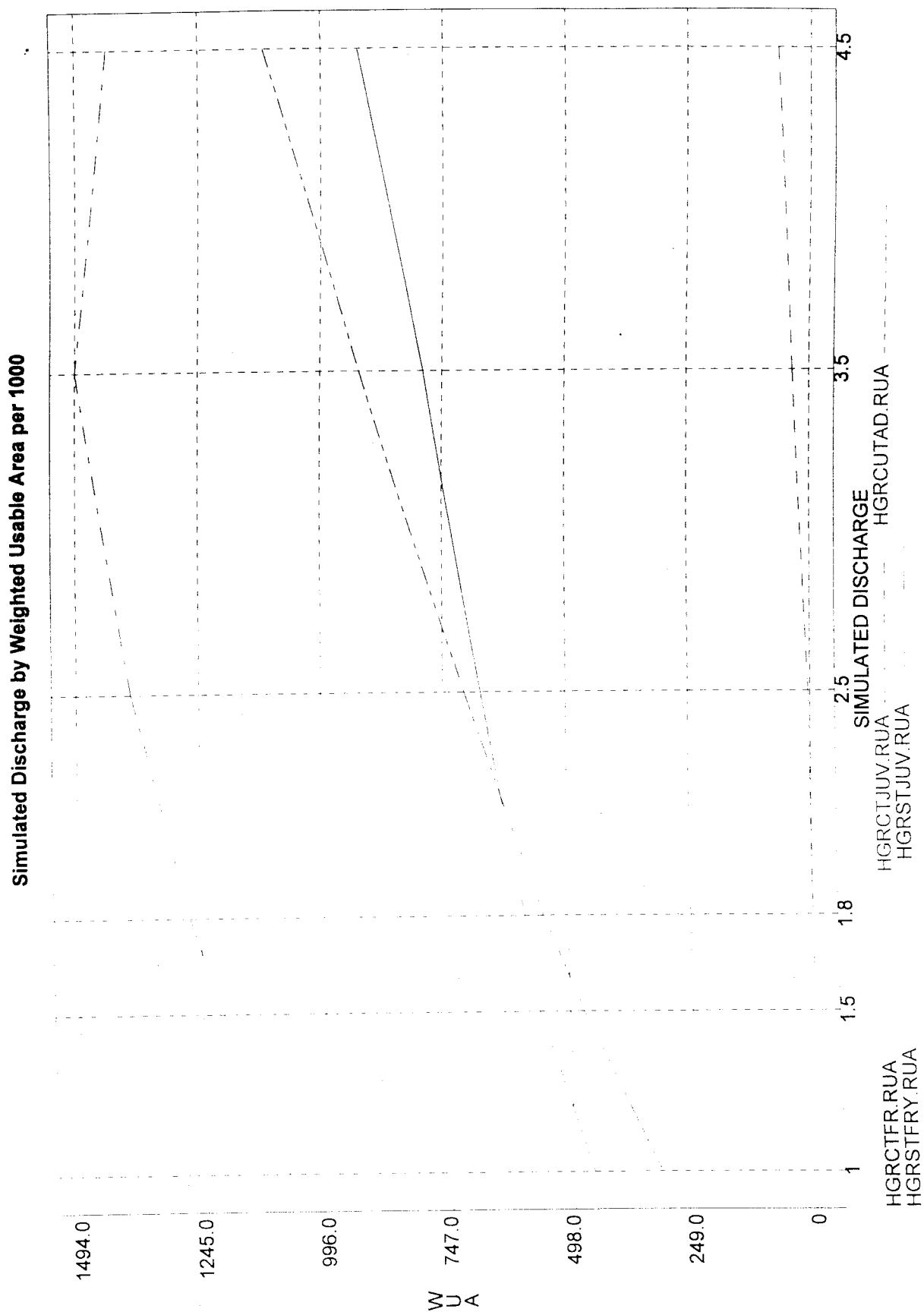


Figure 5. Weighted Usable Area for cutthroat and steelhead trout in Smith Creek, pool 3, reach 1.

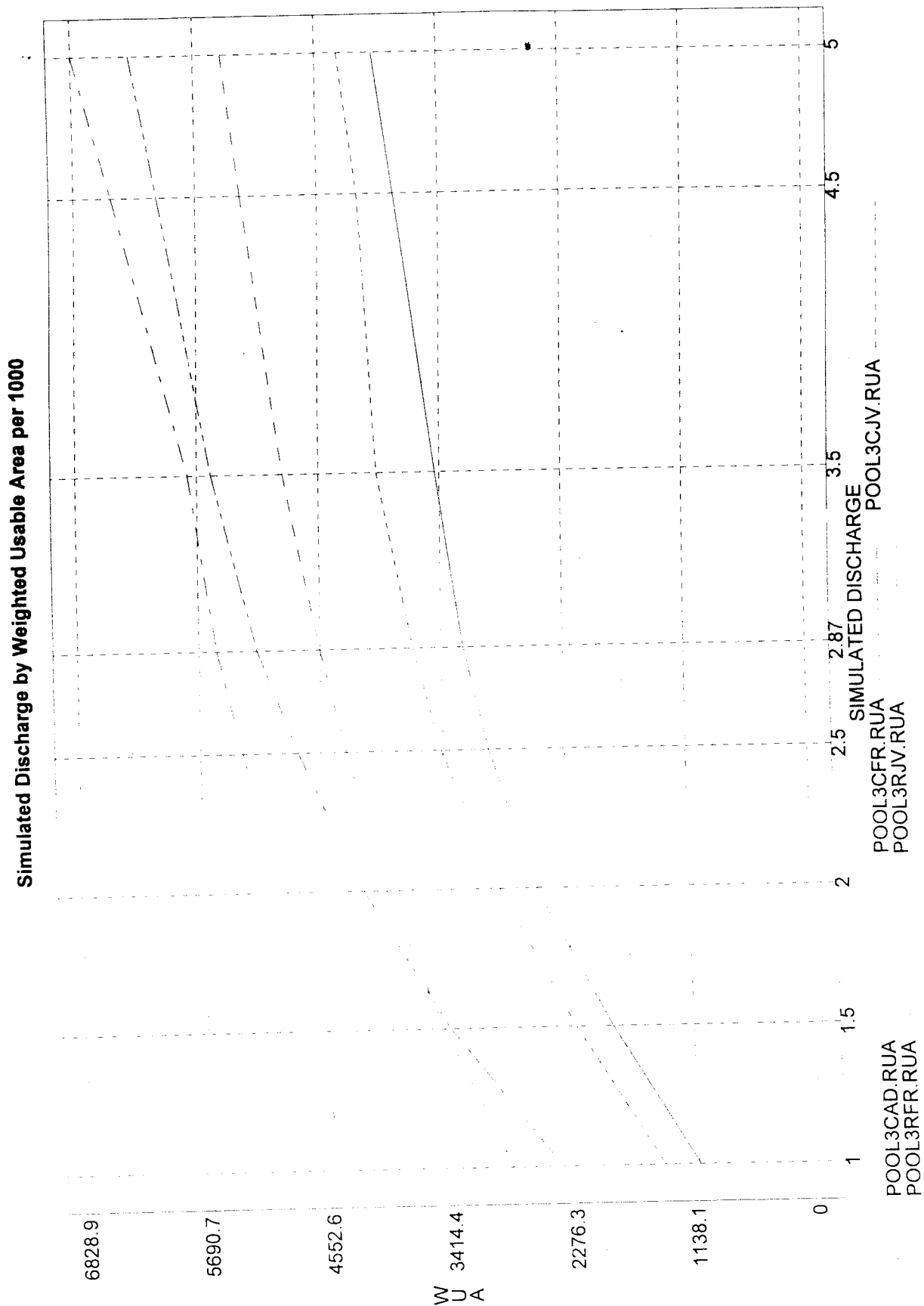


Figure 6. Weighted Usable Area for cutthroat and steelhead trout in Smith Creek, high gradient riffle, reach 2.

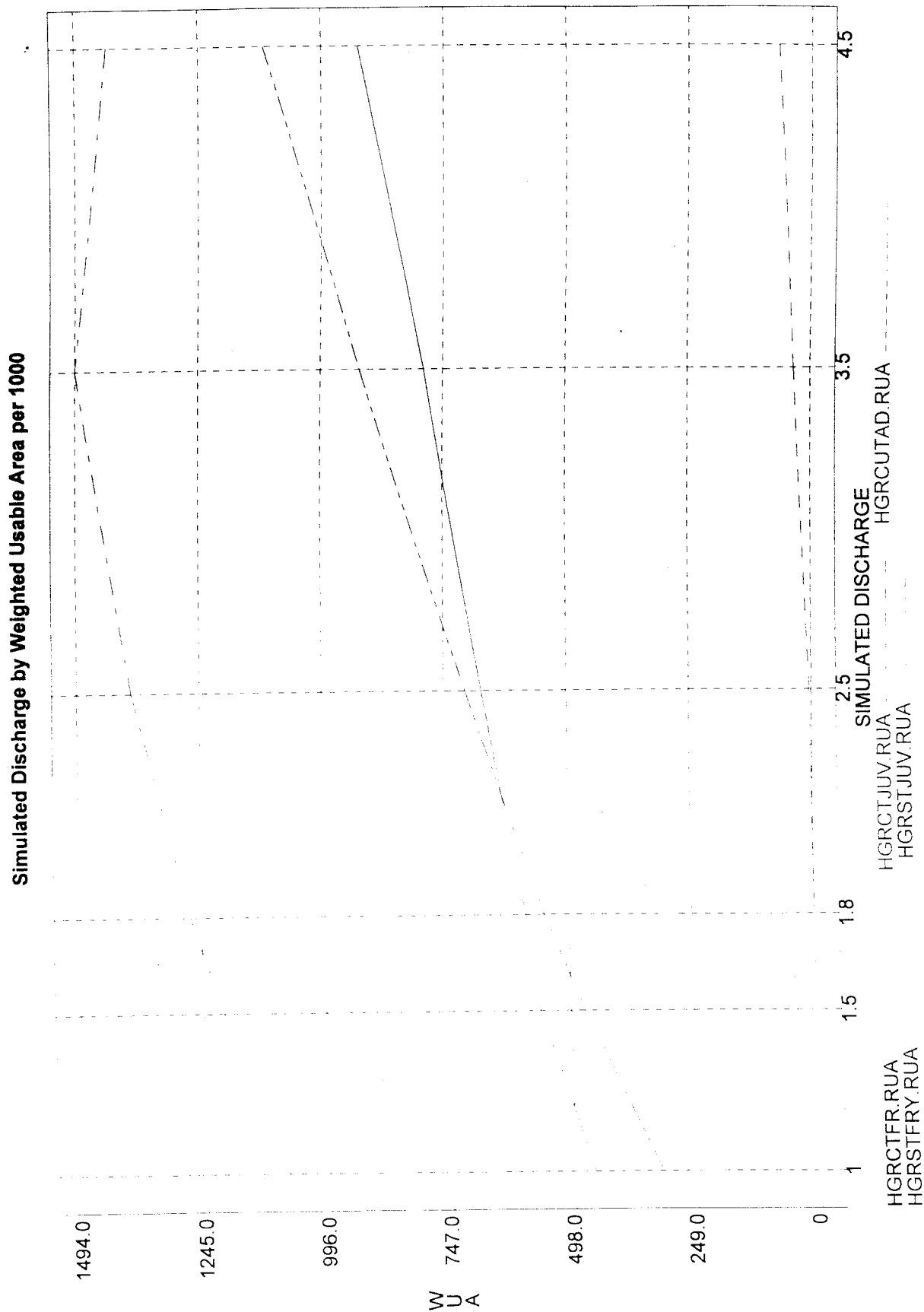


Figure 7. Weighted Usable Area for cutthroat and steelhead trout in Smith Creek, low gradient riffle, reach 2.

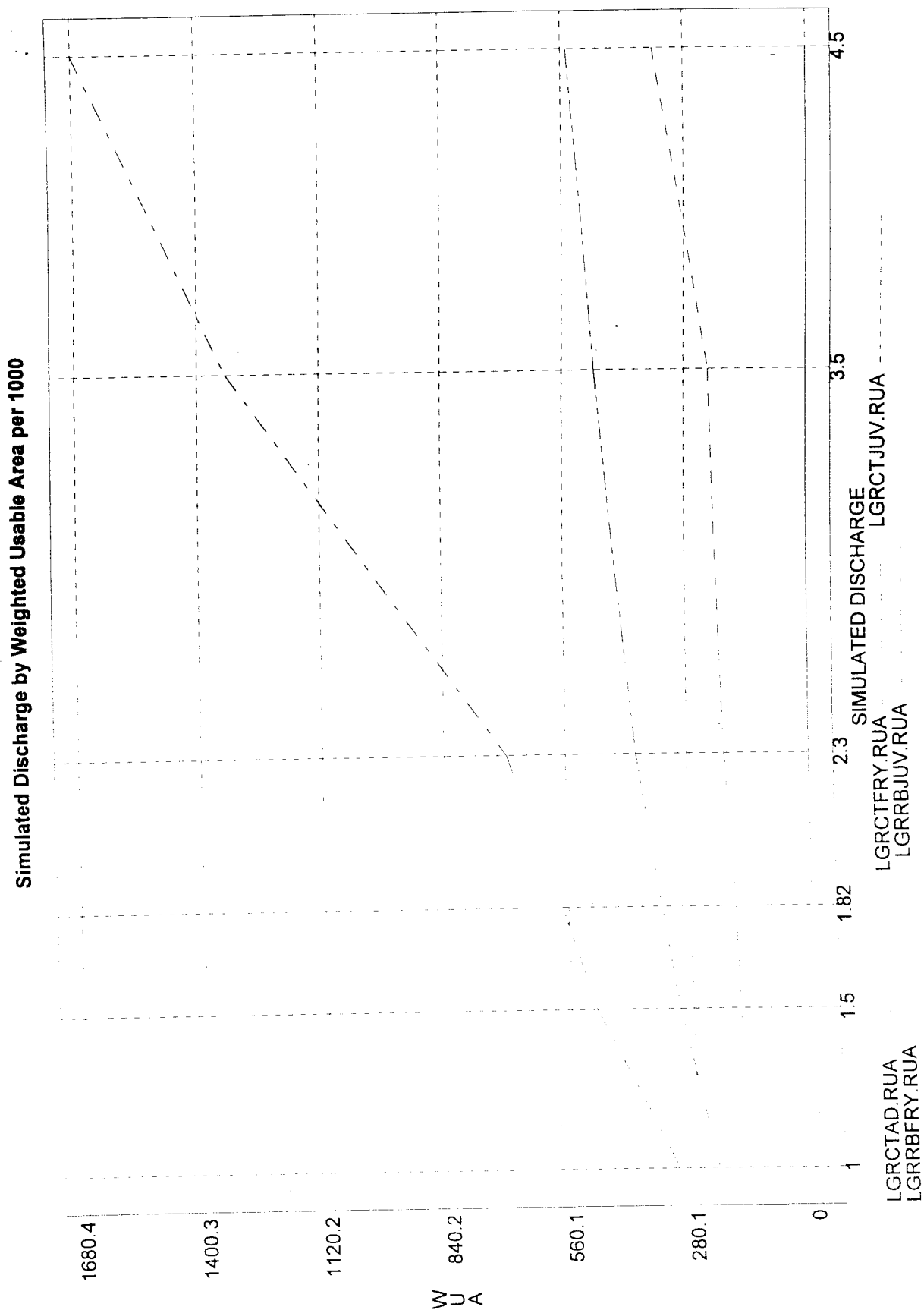
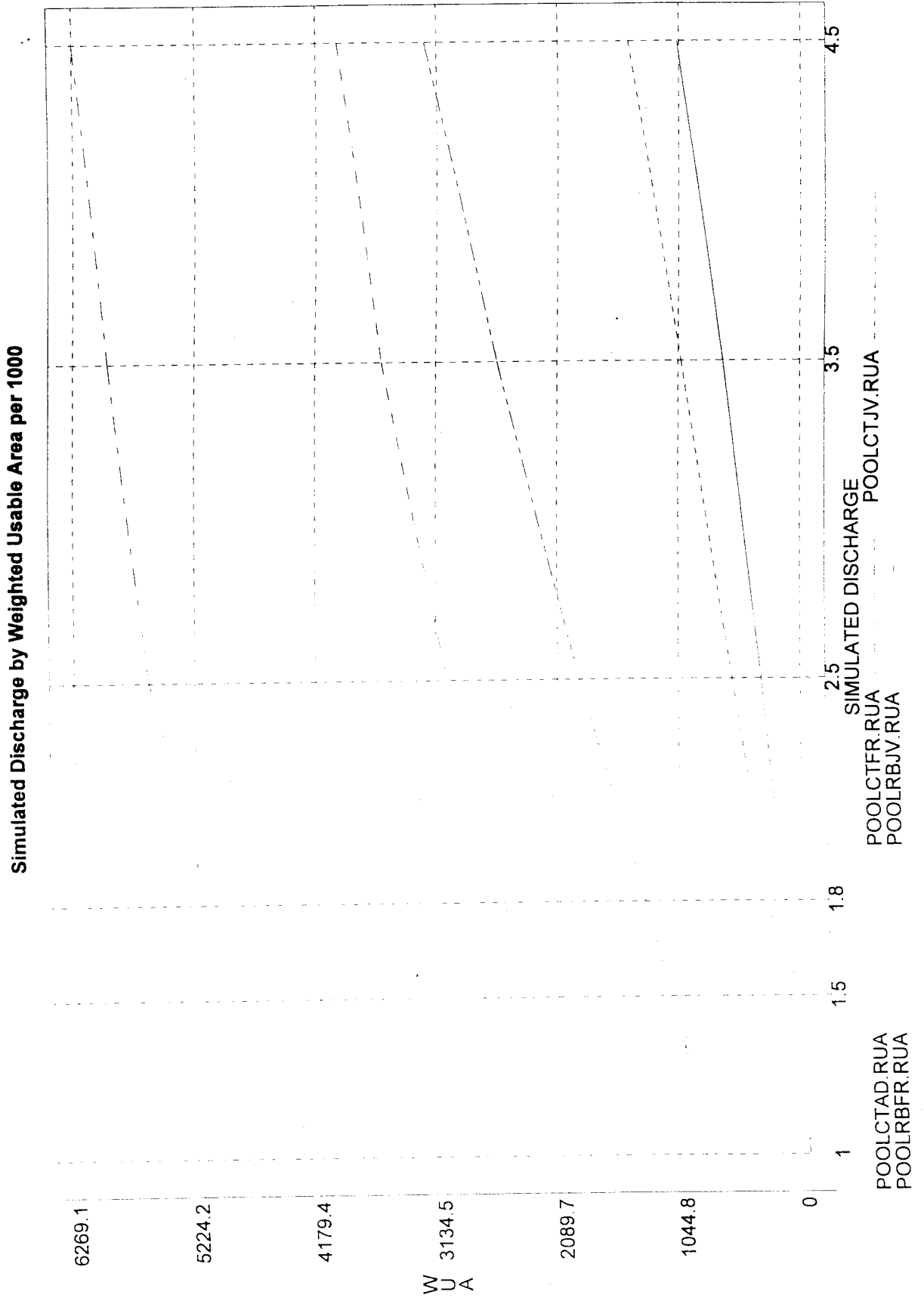


Figure 8. Weighted Usable Area for cutthroat and steelhead trout in Smith Creek, pool, reach 2.



JOB PERFORMANCE REPORT

State of: Idaho **Name:** STATEWIDE
COORDINATION AND
SUPERVISION

Project: FW-7-R-62 **Title:** Statewide Responsive
Management

Subproject : 1 **Job No.:** 3

Period Covered: July 1, 1999 to June 30, 2000

ABSTRACT

During the project period, I participated in Federal Energy Regulatory Commission (FERC) relicensing efforts by Idaho Power Company (IPC) to ensure that hunter, angler, and wildlife viewer interests were represented. I participated in the Western Association of Fish and Wildlife Agencies' Human Dimensions Committee to develop a regionally-collaborative, long-term research study proposal. I collected and circulated human dimensions information, processed information requests, and provided technical services to Idaho Department of Fish and Game (IDFG) staff. No public opinion surveys were conducted this project period.

Author:

Michele Beucler
Wildlife Mitigation Specialist

OBJECTIVES

To recommend measures for mitigating impacts to wildlife-associated recreation from hydropower operations.

To monitor the state's demographics, economic trends, and public opinions regarding fish and wildlife so that the human element can be integrated into IDFG regulations, policies, and "way of doing business."

To provide information and technical assistance to staff members regarding surveys, public involvement strategies, and other human dimensions projects.

METHODS

To protect hunter, angler, and wildlife viewers' interests in FERC relicensing of Hells Canyon Complex (Brownlee, Oxbow, Hells Canyon dams) operations, I participated in the Recreation/Aesthetics Technical Resource Work Group as part of IPC's "collaborative process." I reviewed and commented on recreational study plans, reviewed study results, and toured much of the area of impact including a week-long visit to Hells Canyon. I coordinated with IDFG and IPC staff to develop questions specific to hunting and wildlife viewing for the Hells Canyon National Recreation Area Visitor Survey. I have begun to coordinate with regional IDFG staff to develop protection, mitigation, and enhancement measures for addressing impacts to wildlife-associated recreation. Alternative proposals for protection, mitigation, and enhancement measures will be analyzed and Additional Information Requests will be submitted if necessary.

I also participated on the Recreation/Aesthetics Technical Working Group for C.J. Strike and Malad projects, although to a much lesser extent than for Hells Canyon Complex.

New information on human dimensions was collected through personal contacts, information requests, attending meetings and conferences, and reviewing literature. I subscribed to a peer-reviewed journal and three listservers relating to the human dimensions of fish and wildlife management. Finally, I called on the Organization of Wildlife Planners network several times for information.

Information was disseminated by responding to verbal and written requests, circulating pertinent information to appropriate people, providing facts for the IDFG internal newsletter and other media outlets, and giving presentations to various teams.

Technical services, such as developing questionnaires and participating on interagency work groups, were provided upon request and/or when needed.

RESULTS

Preliminary results from several recreational studies by IPC were presented to the Recreation/Aesthetics Technical Working Group during this project period. The quantity and quality of information being collected is impressive. Summaries included the demographics, recreational characteristics, expenditures, and opinions of reservoir and Hells Canyon National Recreation Area visitors. Other information includes a dispersed site inventory, descriptions of angler use and hunting pressure, type and intensity of recreational use, and spatial and temporal distribution of recreational use. Several studies are continuing, including flow impacts on recreation, carrying capacity studies, and site condition analysis.

The Recreation/Aesthetics Technical Working Group developed desired future conditions for recreation and aesthetics in the Hells Canyon Complex. Protection, mitigation, and enhancement measures will be developed to progress towards those desired future conditions. The Work Group developed the review process for evaluating potential protection, mitigation, and enhancement measures for recreation. IDFG regional staff began developing a list of measures that included trailhead improvements, off-road vehicle closures, and boats and personnel for enforcement.

I participated in the Western Association of Fish and Wildlife Agencies' Human Dimensions Committee (Committee), which is developing a study proposal for regionally-collaborative, long-term human dimensions research. I have tracked draft proposals, submitted written comments to the Committee, and briefed IDFG leadership.

Other accomplishments include providing references and information to the IDFG Wildlife Bureau regarding the human dimensions of predator control, responding to a request from a newspaper reporter for information about trends in hunter participation and hunter recruitment, and reviewing several draft fisheries questionnaires.

I attended the 2000 Organization of Wildlife Planners annual conference (conference expenses were covered by non-PR dollars) in Missouri. The conference theme was Conservation Leadership and Legacy. Tom Melius of Federal Aid delivered the keynote address and discussed the changes at Federal Aid. Various aspects of CARA were discussed, including Federal Aid rules and regulations, finding matching funds, and planning for the infusion of funds and for the agency culture shock. Other key points of the conference included an emphasis on collaboration and partnerships and a three-hour workshop on the Organizational Effectiveness Cycle. Highlights of the conference were written and distributed to the IDFG Operations Team and the IDFG Federal Aid Coordinators.

GOALS FOR THE NEXT PROJECT PERIOD

Continue to represent the interests of hunters, anglers, and wildlife viewers in IPC's FERC relicensing efforts for Hells Canyon Complex, C.J. Strike, and Malad.

Conduct a survey of all IDFG employees to help determine how CARA should be implemented and to gauge internal support for the cultural changes that CARA may bring to the agency.

Provide technical assistance for public opinion surveys and respond to information requests.

JOB PERFORMANCE REPORT

State of: Idaho **Name:** STATEWIDE TECHNICAL ASSISTANCE

Project: FW-7-R-6 **Title:** Panhandle Region Technical Assistance

Subproject: II **Job No:** 1

Period Covered: July 1, 1999 to June 30, 2000

ABSTRACT

During the calendar year 1999, I provided written comments on 217 issues, developments, or proposals that could potentially affect fish and wildlife habitat in the Panhandle Region. In addition, I provided technical assistance by attending meetings, site visits, or via phone and e-mail on 284 occasions. Forest management, stream and lakeshore alterations, and land development issues required significant amounts of time and effort. Technical assistance provided to the Idaho Department of Transportation (IDT) increased significantly as several new projects required providing of information and participation in merger meetings. Major emphasis was placed on making the transition from reaching a settlement agreement on the Avista projects to beginning implementation of the agreement. A full-time Regional Fisheries Biologist job was created to handle implementation and is under my supervision. Idaho Department of Lands (IDL) and U. S. Forest Service (USFS) timber sale programs continued to require considerable effort. I also worked cooperatively with fish management staff on fish data collection efforts in order to improve the data on which we use to base comments.

Author:

Chip Corsi
Environmental Staff Biologist

OBJECTIVES

1. Influence land use decisions in the Panhandle Region to protect or improve fish and wildlife habitat.
2. Provide other agencies, organizations, or individuals with technical guidance, assistance, advice, or comments on projects and activities or developments that might affect or are associated with fish and wildlife habitat in the region.
3. Participate in finalizing a settlement agreement between Idaho Department of Fish and Game (IDFG), Avista Utilities, and other stakeholders in the Clark Fork relicensing process, and begin implementation of the protection, mitigation, and enhancement measures.
4. Comment on NEPA documents, FERC documents, stream channel and lakeshore alteration proposals, land use planning, and other environmental impacts.
5. Coordinate with other IDFG personnel and volunteers to meet workload demands. Continue to seek opportunities to improve monitoring and baseline data collection abilities, and conduct field reconnaissance of project sites to improve the quality of responses.
6. Continue to work closely with other agencies, the public, and industry representatives to prevent or reduce impacts to fish and wildlife.

METHODS

I used personal contacts, project and document review, and field inspections as a basis for providing technical guidance on projects, activities, or proposals that could affect fish and wildlife resources in the Panhandle Region.

RESULTS

During the project year, I provided written comments on 217 habitat-related issues. In addition, I provided technical assistance by attending meetings, site visits, or via phone and e-mail on 284 occasions (Table 1). As in previous years, the greatest number of contacts was with IDL, Idaho Department of Water Resources (IDWR), the USFS, and on city or county planning and zoning issues. There was a significant increase in the level of assistance provided to the IDT due to new highway project proposals located around the region.

Table 1. Summary of technical assistance contacts by Panhandle Region Environmental Staff Biologist during the period January 1999 through December 1999.

Agency/Group	Written	Meetings/ Site Visits	Total
US Forest Service	27	9	36
Idaho Department of Lands			
- Timber	36	4	40
- Navigable Waters	28	3	31
- Mining	1	5	6
Idaho Department of Water Resources	38	21	59
US Army Corps of Engineers	16	17	33
City/County Planning and Zoning	26	4	30
Bureau of Land Management	4	1	5
Division of Environmental Quality	1	5	6
Coeur d'Alene Basin Groups	2	3	5
Tri-State Council	0	1	1
FEMA	0	6	6
Idaho Transportation Department	3	25	28
US EPA	2	1	3
Bonneville Power Administration	0	1	1
Federal Highway Administration	0	1	1
US Fish and Wildlife Service	2	18	20
Armed Forces	0	1	1
Timber Industry	0	10	10
Utilities/FERC	10	37	47
Panhandle Area Council	3	0	3
Natural Resources Conservation Service	3	5	8
Idaho Department of Parks and Recreation	1	0	1
Media	0	2	2
School/Conservation/Sportsmen Groups	2	34	36
Individuals	4	17	21
County Road and Bridge Departments	0	1	1
Other States/Provinces	1	5	6
In House	0	23	23
Developers	5	3	8
University	1	6	7
Chamber of Conference	0	0	0
Bull Trout WAG	1	15	16
Totals	217	284	501

IDL foresters continue to be receptive to IDFG comments on habitat issues. I work closely with the IDL fisheries biologist on identifying migration barriers, defining Class I streams, and other issues.

Considerable salvage activity continued on USFS lands but was confined primarily to activities along existing roads, and some road obliteration or decommissioning will occur at the close of sales. The net result will be a reduction in road mileage on the forest. An increase in salvage sale activity is anticipated in the IPNF as a result of an outbreak of Douglas-fir beetles, but again, salvage sales will be used as an opportunity to address the problem of high road densities for fish and wildlife. Landscape planning is underway and some large projects requiring EISs were proposed and commented on, including projects in the St. Joe basin and the Kootenai River basin.

I continued to provide technical input on restoration activities associated with the clean-up of mine waste in the Coeur d'Alene basin.

During 1999 a considerable amount of my time was devoted to making the transition from participating in development of the Settlement Agreement for the Avista Clark Fork hydroelectric projects to implementation of protection, mitigation, and enhancement measures. Until the new regional fisheries biologist job was created and filled to take on the IDFG's role in implementation of the Settlement Agreement, I served as the IDFG's representative on the Aquatic Implementation Team, the Technical Advisory Committee, and on the Management Committee. As of late 1999, I supervise the regional biologist and serve on the Management Committee for this project.

I dedicated considerable time to providing Crown Pacific Timber Company with technical assistance in providing fish passage at their old lumber mill site on Colburn Creek. Fish passage is now restored after several decades of the mill dam being a migration block.

Several new IDT projects are being proposed on US 95, SH 5, and elsewhere. Because of IDFG's increased involvement through the merger process, highway projects are becoming a significant part of the regional workload.

I participated with the Regional Fisheries Management staff in the collection and analysis of data, including electrofishing, redd counts, and snorkeling to assess fish populations in regional streams.

JOB PERFORMANCE REPORT

State of: Idaho **Name:** STATEWIDE TECHNICAL ASSISTANCE

Project: FW-7-R-6 **Title:** Clearwater Region Technical Assistance

Subproject: II **Job No.** 2

Period Covered: July 1, 1999 to June 30, 2000

ABSTRACT

During the 1999-00 project year, comments and technical input were provided on proposals, issues, and developments that might affect fish and wildlife resources in the Clearwater Region. The primary projects were: working under the umbrella of the Clearwater Elk Initiative, working on sub-basin planning with the Focus watershed project, working on a cooperative effort with Idaho Department of Transportation (IDT) to develop a wetland and fishing pond, administration, and information and education related to an Environmental Protection Agency (EPA) grant on historical wetlands, working on the Red River restoration project and the Dworshak project. Programmatic efforts continued on outfitter amendments and requests, input and site visits to Idaho Department of Water Resources stream alteration proposals and dredging permits, internal coordination and information gathering, commenting on community development projects, and assisting with fisheries and wildlife monitoring and public meetings.

Gregg Servheen
Environmental Staff Biologist

Wildlife Biologists:

Jay Crenshaw, Sam McNeil, Steven Nadeau, George Pauley, Jim White, Miles Benker, Jeff Gould

Fisheries Biologists:

Tim Cochnauer, Jody Brostrom, Ed Schriever

OBJECTIVES

1. Provide fish and wildlife technical assistance and information to state, federal, and government agencies.
2. Coordinate IDFG input on proposed developments, mitigation, and impacts to fish and wildlife resources.
3. Provide written responses and documentation on Idaho Department of Fish and Game (IDFG) positions and policy related to fish and wildlife issues.
4. Provide internal input and comment on how IDFG policies, rules, regulations, and positions will affect other natural resource management agencies and private elements.
5. Support IDFG fish and wildlife management efforts by participating in fish and surveys and interdisciplinary teams.

METHODS

Letter and document review, meetings, personal, e-mail, and phone contacts; written responses; literature review, data summaries, and field inspections were used to provide fish and wildlife input and internal coordination.

RESULTS

The number of comments has remained stable the last two years. Informal technical assistance using e-mail and a cooperative network has replaced more formal written letters. The established and consistent program direction in the region has reduced the need for formal and detailed responses in some programs. In parallel, the increased number of listed species in the region has shifted fish and wildlife management authority towards the federal Endangered Species Act (ESA) and formal consultation through the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service, ESA's corresponding management agencies. Individual technical assistance comments are also being replaced by increased participation in larger more programmatic coordination and technical assistance programs like Kamiah's Project Impact, the Clearwater Elk Initiative, and watershed assessments and projects.

Issues of Note

Clearwater Elk Initiative

IDFG is a cooperator with the Clearwater and Nez Perce national forests, the Idaho Department of Lands, Potlatch Corporation, the Army Corps of Engineers, Rocky Mountain Elk Foundation, University of Idaho, Bureau of Land Management, and sportsmen in the Clearwater Elk Initiative. The Initiative has focuses on three primary efforts. These include small-scale prescribed fire projects, a large-scale NEPA effort to select and treat vegetation for improving elk habitats on the North Fork of the Clearwater River, and a programmatic change in fire suppression on approximately 500,00 acres in the North Fork of the Clearwater River.

Current large-scale efforts include the North Fork Clearwater BHROWS project and Meadow Face Stewardship Project. IDFG committed two full-time biologists to the BHROWS NEPA effort for eight months to assist the Clearwater Forest in this project. The draft EIS on this 180,000-acre analysis is due out the fall of 2000. It will focus on habitat treatments through burning and helicopter logging in summer and winter elk habitats.

The Meadow Face Stewardship Project area encompasses 27,000 acres within the South Fork Clearwater River in Idaho County, Idaho. The Forest Service completed a draft assessment of conditions within the project area in October 1999. The Stewards of the Nez Perce Forest, a collaborative group, is developing proposed activities for the area that respond to ecological and social conditions which need attention. Projects proposed by the group include road repair and decommissioning, recreation facility improvement, vegetation management with timber harvest and fire, and wildlife and fisheries habitat improvement. Stewardship members include four local timber companies, the Concerned Sportsmen of Idaho, the Nez Perce Tribe, Grangeville Chamber of Commerce, Idaho Fish and Game, Labor and Woodworker Unions, the Idaho Conservation League, and local citizens.

IDFG filed as an interested party in the appeals of the North Lochsa Face Project because of its potential to benefit elk habitats, elk vulnerability, and watershed conditions. This is another large-scale project in the Lochsa watershed. This EIS was appealed in its two decisions--vegetative management and access management. The access management appeal was dismissed and this plan will be implemented. IDFG was a member of the collaborative group that developed the plan. The vegetative management decision was remanded back to the forest for adjustment based on watershed analysis conclusions. The associated 12,000 acres of prescribed fire within this decision will be deferred until the proposal can be successfully upheld.

Use of prescribe fire and wild fire for resource benefit continue to come under careful public scrutiny, especially in light of the recent events at Hanford and Los Alamos. The US Forest

Service fire-fighting culture and the media continue to perpetuate fires as catastrophic events with no benefits. This is a continuing obstacle as we look for elk habitat improvements through programmatic changes in fire suppression on the Clearwater Forest.

Bull Trout and Water Quality

Since the six bull trout assessments were completed, bull trout conservation efforts under the Governor's plan in cooperation with the Department of Environmental Quality have slowed. Emphasis has switched to the USFWS efforts to develop a bull trout recovery plan across the range of the listed species.

Wetlands Reference Conditions Project

This project is testing a technique using terrain analysis and digital soil information for predicting areas where historic wetlands may have occurred. Based on these maps, soil cores have been taken at selected sites to determine the accuracy of the technique and to identify the species of plants that occurred in these historic wetland areas. IDFG's Information and Education Bureau has completed a draft "Wild About Wetlands" Project Wild Education book and an education video under this project. During the remainder of this project we will sample historical wetland sites; complete a more "management oriented" video for civic groups, public meetings, and open houses; and finalize the wetlands program in statewide Project Wild. Benefits of this project include assisting the HIP program's work with private landowners that want to develop wetlands and wildlife habitats by helping prioritize and identify potential wetland development sites and providing educational and management perspectives on wetlands.

Red River Stream Restoration Project

This project is part of the Northwest Power Planning Council's Columbia Basin Fish and Wildlife Program. This is one of Bonneville Power Administration's (BPA) efforts at off-site mitigation for damage to salmon and steelhead runs and wildlife mitigation for construction and operation of federal hydroelectric dams on the Columbia River and its tributaries. This is the seventh year of restoration efforts, including two years of planning and four years of restoration implementation. The overall goal of the project is to restore the physical and biological processes and functions of the Lower Red River Meadow ecosystem to provide high quality habitat for chinook salmon, steelhead trout, bull trout, and other anadromous and resident fish species. To date \$6.5 million has been spent of which approximately \$400,000 was spent in this

fiscal year. The funding agency is BPA. The contract agency is Idaho County Soil and Water Conservation District.

Long Gulch Pond

Long Gulch Pond is a 40+ acre site that has been under gravel mining lease with the Idaho Department of Lands. The site is an oxbow of the Salmon River cutoff from the river by Highway 95 near Lucile, Idaho. It offers some fishing for stocked trout and has potential to provide wetland habitats and enhanced fishing recreation. Because the mining lease was to expire at the end of 1999, we successfully worked with the Lands minerals program to not renew the mineral lease and accept the Department as the leaseholder of the site. In cooperation with the University of Idaho Landscape Architecture Department and the Idaho Department of Transportation, we submitted for a grant to fund parking lot, restrooms, dock construction, information kiosk, and wetland development plantings at the site. The proposal was not successful but we will seek funding next year. In the meantime, we will expend the budgeted \$30,000 in license funds to enhance the recreational fishing at the site in FY 00.

BPA Sub-Basin Planning

BPA funding for a part time IDFG fisheries biologist is providing aquatic information to the Clearwater basin Focus Watershed sub-basin plan. Through efforts of the Focus Watershed Policy Advisory Committee and the cooperative efforts of the Nez Perce Tribe, the Clearwater has also proposed and begun developing terrestrial components and data to include in the sub-basin assessment. This will include work with the University of Idaho Landscape Lab in developing a vegetative dataset for the basin, assessing species habitat models and presence/absence data for selected species, and modeling priority habitat and species needs within the basin. This will provide more of a watershed approach to the sub-basin plan that was not previously included in the initial assessment efforts.

Dworshak Project

The region developed a cooperative project with the U.S. Army Corps of Engineers (COE) to evaluate fish and wildlife on the Dworshak mitigation area. The COE will fund the two-year project. We developed a task order, proposal, and budget for surveying and inventorying the mitigation lands and for helping to write the Operations Management plan revision. The

\$330,000 budget includes a LSA project leader position, equipment, and temporary time to inventory the mitigation lands and develop a GIS database for fish and wildlife information. This information will be used to formulate the revised Operations Management plan and its associated EIS.

Table 1. Summary of Technical Consultation for the period July 1, 1999 to June 30, 2000

Type of Contact			
Agency or Group	Written	Meetings/ Site Visits	Total
US Forest Service	39	44	83
ID Dept of Lands	18	11	29
ID Dept of Water Resources	22	24	46
US Bureau of Land Management	0	2	2
Municipal	8	9	17
Army Corps of Engineers	8	9	17
ID Dept of Transportation	11	7	18
Power Companies	0	0	0
Bonneville Power Administration	2	18	20
Clearwater Econ. Devop. Assoc.	0	0	0
Farm Services Administration	0	0	0
Professional	0	3	3
Idaho Parks & Recreation	0	2	2
National Resource Conservation Service	2	3	5
Public Advisory Groups	0	0	0
Fed. Energy Mgt. Authority	0	0	0
Fed. Energy Reg. Comm.	1	0	1
University of Idaho	21	12	33
Idaho Outfitters and Guides Board	10	4	14
Idaho Dept. of Environ. Quality	2	1	3
Nez Perce Tribe	3	2	5
Timber Industry	4	2	6
In House	23	24	47
Counties	3	1	4
Public/Individual	3	8	11
National Marine Fisheries Service	1	1	2
US Fish and Wildlife Service	8	8	16
Lewis and Clark State College	0	2	2
Public Utilities Commission	2	0	2
US Geological Survey	0	1	1
Total	191	198	389

Table 2. Summary of Technical Assistance Provided by Clearwater Region, 1985-1999

Agency	Report year													
	1980-1985	1986	1987	1988	1989	1990	1992	1993	1995	1996	1997	1998	1999	
Idaho Dep. Of Water Resources	---	---	---	---	---	---	---	---	---	138	50	43	46	
US Bureau of Land Management	4	4	1	2	4	---	---	---	---	5	1	2	2	
US Army Corps of Engineers	1	3	2	---	1	---	---	1	---	9	24	36	17	
US Forest Service	10	12	14	39	12	2	10	11	10	122	93	70	83	
Idaho Department of Lands	2	3	---	2	2	1	1	2	---	38	6	25	29	
ID Department of Transportation	3	2	---	---	---	---	2	---	---	20	26	12	18	
Potlatch Corporation	2	3	3	2	3	2	2	4	---	---	2	---	---	
Bonneville Power Administration	---	1	---	---	---	---	---	---	---	3	2	---	20	
University of Idaho	---	1	---	1	---	---	---	---	---	7	3	17	33	
Municipal	---	2	2	---	---	---	---	---	---	14	9	8	17	
Port of Lewiston	---	1	---	---	---	---	---	---	---	---	---	---	---	
Counties	---	2	---	---	---	---	2	---	---	9	17	1	4	
US Bureau of Reclamation	---	---	---	---	---	---	---	---	---	---	---	---	---	
Nez Perce Tribe	---	1	1	---	---	---	---	---	---	1	2	---	5	
Private	---	---	---	---	---	---	---	---	---	---	---	---	---	
SCS/ASCS/NRCS/FSA	---	2	---	1	1	---	---	2	---	6	4	1	5	
Federal Energy Reg. Comm.	---	---	2	---	---	---	---	---	---	9	5	---	1	
US Fish & Wildlife Service	---	---	---	---	---	---	2	---	---	---	---	---	16	
ID Outfitters & Guides Lic. Board	---	2	2	1	1	1	1	1	---	9	22	30	14	
Forest Industry	---	1	---	1	1	1	1	---	---	3	---	2	6	
Power Companies	---	---	2	---	---	---	---	---	---	4	1	---	---	
Columbia River Intertribal Fish	---	---	---	1	---	---	---	---	---	---	---	---	---	
Rocky Mountain Elk Foundation	---	---	---	---	---	---	1	---	---	---	1	---	---	
Public/ Individuals	---	---	---	---	1	1	---	5	---	12	17	8	11	
Idaho Parks & Recreation	---	---	---	---	---	---	---	2	---	2	1	2	2	
Public Advisory Group	---	---	---	---	---	---	---	---	---	---	0	---	---	
Clearwater Economic Dev. Assoc.	---	---	---	---	---	---	---	---	---	13	0	---	0	
Idaho Dept of Environ. Quality	---	---	---	---	---	---	---	---	---	96	75	57	3	
Federal Energy Mgt Authority	---	---	---	---	---	---	---	---	---	---	5	---	0	
Internal	---	---	---	---	---	---	---	---	---	---	73	51	47	
Lewis and Clark State College	---	---	---	---	---	---	---	---	---	---	---	---	2	
US Geological Survey	---	---	---	---	---	---	---	---	---	---	---	---	1	
Public Utilities Commission	---	---	---	---	---	---	---	---	---	---	---	---	2	
National Marine Fisheries Service	---	---	---	---	---	---	---	---	---	---	---	---	2	
Professional	---	---	---	---	---	---	---	---	---	---	---	---	3	
Total	22	40	29	50	26	8	20	28	10	520	439	370	389	

1 Technical assistance was summarized from previous reports.

JOB PERFORMANCE REPORT

State of: Idaho **Name:** STATEWIDE TECHNICAL ASSISTANCE
Project: FW-7-RE-6 **Title:** Southwest Region Technical Assistance
Subproject: II **Job No.:** 3
Period Covered: July 1, 1999 to June 30, 2000

ABSTRACT

During the project year, the Southwest Region Environmental Staff Biologist provided technical comments or review on 464 documented occasions. Additionally, I attended another 97 meetings and site visits for a total of 561 technical guidance contacts. The majority of contacts were with state and federal agencies dealing with a variety of land and water management issues having potential effects on fish and wildlife habitats. Important issues were urban planning and development, stream channel and wetland alterations, Endangered Species Act-related programs, hydropower relicensing, and water quality. As in previous years, I participated in a number of interagency committees and work groups.

Author:

Scott A. Grunder
Environmental Staff Biologist

OBJECTIVES

To provide technical support and assistance to local governments, private entities, the public, and state and federal agencies in matters pertaining to fish and wildlife resources within the administrative boundaries of the Southwest Region of the Idaho Department of Fish and Game (IDFG).

METHODS

I used personal contacts, field inspections, other agency expertise, and literature reviews to provide technical assistance on projects, activities, or proposals that could effect fish and wildlife resources in the Southwest Region. Technical reviews were generally coordinated with other IDFG staff. I provided comments by written, verbal, or electronic mail. I attended many inter- and some intra-agency meetings to discuss and resolve fish and wildlife habitat issues and angler- and hunter-based recreation matters.

RESULTS

During the project year, I provided technical assistance, support, and review on about 462 occasions and attended 97 meetings and/or site visits (Table 1). As in past years, most of my time was directed towards coordinating activities with state and federal agencies.

Native Fish Watershed Advisory Group

I continued my active participation as co-facilitator and technical advisor for the Native Fish Watershed Advisory Group (NFWAG) in the Southwest Basin of Idaho. Since the inception of the NFWAG in early 1997, the primary focus has been the conservation and recovery of the federally-listed bull trout. Since the last project year, the federal government has undertaken an independent recovery effort separate from the state of Idaho.

As reported in Reid and others (1999), a fish ladder was constructed at the Kirby Dam on the Middle Fork Boise River by the IDFG. It was officially opened in early July 1999 and closed in

Table 1. Summary of technical guidance contacts of the Southwest Region Environmental Staff Biologist during the period July 1, 1999 to June 30, 2000.

Agency/Group	Written	Meetings/Site Visits	Totals
US Forest Service	21	11	32
Bureau of Land Management	6	3	9
US Army Corps of Engineers	24	0	24
Fish & Wildlife Service	0	2	2
Bureau of Reclamation	2	4	6
Bonneville Power Administration	1	0	1
Federal Energy Regulatory Com.	1	0	1
Idaho Department of Lands	12	7	19
Idaho Depart. of Environ. Quality	4	7	11
Idaho Transportation Department	3	2	5
Idaho Department of Water Resources	267	4	271
Office of the Attorney General	0	2	2
Governor's Office	0	1	1
City/County Governments	25	8	33
Consultants/Private Entities	75	3	78
Citizens/Sportsmen/Conservation Groups/Schools/Other	5	3	8
Basin & Watershed Groups	0	13	13
Hydropower Relicensing Efforts	4	11	15
Media Contacts	1	8	9
Intradepartment	13	8	21
TOTALS	464	97	561

late September 1999. The IDFG monitored use of the ladder by fish using remote underwater video equipment mounted in the uppermost ladder step. A total of seven bull trout were positively identified passing through the ladder from July 20 through August 8, 1999. Thirty-three redband trout were positively confirmed to migrate through the ladder as well. There were a number of salmonids using the ladder that to date have not been positively identified. Based on review of videotapes, it appeared that most movement of bull trout occurred during low light periods, usually in the evening.

In August 1999, I participated in the second season of the brook trout removal and suppression project in the Pikes Fork drainage, situated in the North Fork Boise River watershed (Grunder 1998). Once again, an interagency effort was undertaken using electrofishing gear to remove

brook trout from the drainage to promote recovery of bull trout. Results of this project are described in Meyer (2000).

During the project year, the NFWAG officially approved key watershed problem assessments for the Weiser River and Hells Canyon. I authored the problem assessment for the Hells Canyon Group of key watersheds (Grunder 1999).

Rural and Urban Development

Proposals for rural and urban subdivisions in the Southwest Region continued at a brisk pace during the project year. As reported in Reid and others (2000), the Ada County Board of Commissioners instituted a requirement in the revised Comprehensive Plan that all new proposed subdivisions must get a review by the IDFG regarding potential wildlife issues. While this has increased my workload, working in concert with the Idaho Conservation Data Center and regional IDFG staff has minimized the effort and increased efficiency.

The City of Boise led an effort to develop a comprehensive Foothills Open Space Management Plan for public lands. I participated in this effort along with Jerry Scholten, Regional Habitat Biologist. The project boundary encompasses the Boise River Wildlife Management Area, an area critical for wintering mule deer. This planning effort and implementation should have beneficial long-term consequences for wildlife, recreation, parklands, agencies, and private landowners. A draft plan is anticipated for completion in late July 2000.

Bear Valley Creek and Deer Creek Livestock Grazing Allotments

I assisted in writing a funding proposal to the Bonneville Power Administration for a proposed project to protect critical fish habitat in the Bear Valley Creek and Deer Creek drainages. The overall goal of the proposal is to protect critical spawning, rearing, and migratory habitats for wild spring/summer chinook salmon, steelhead trout, bull trout, and westslope cutthroat trout. The proposal cites compensating willing permittees for their grazing permits and permanently closing these two allotments to livestock grazing. These two combined allotments total over 70,000 acres of national forest system lands.

As reported in Reid and others (2000), I previously helped write a similar proposal to protect critical fish habitat in the Elk Creek drainage of the Bear Valley Creek Basin. The project was funded in full and is currently being implemented.

Hells Canyon Complex Relicensing Efforts

I continued participating in the collaborative process for the relicensing efforts of Idaho Power Company regarding the three dam complex located in the Hells Canyon reach of the Snake River. I am a member of the technical Aquatic Work Group (AWG). The AWG has provided important oversight and review to aquatic resource study design and implementation, developing desired future conditions for resources, and are now developing draft protection, mitigation, and enhancement (PME) measures. The AWG expects to have draft PME measures by late spring of 2001.

LITERATURE CITED

- Grunder, S.A. 1998. A proposal for brook trout removal and suppression to aid in recovery of bull trout in the Crooked River Drainage, Idaho. A Report Submitted to the Southwest Basin Native Fish Watershed Advisory Group. Idaho Department of Fish and Game, Southwest Region Office, Nampa, Idaho.
- Grunder, S.A. 1999. Hells Canyon Group Key Watersheds Bull Trout Problem Assessment. Southwest Basin Native Fish Watershed Advisory Group, Boise, Idaho.
- Meyer, K. 2000. Assessment of the 1999 brook trout removal efforts in the Pikes Fork of the Crooked River. A Report Submitted to the Southwest Basin Native Fish Watershed Advisory Group. Idaho Department of Fish and Game, Research Section, Nampa, Idaho.
- Reid, W., C. Robertson, M. Beucler, and others. 1999. Statewide Technical Assistance. Job Performance Report, Project FW-7-R-5. Idaho Department of Fish and Game, Boise, Idaho.

JOB PERFORMANCE REPORT

State of: Idaho **Name:** STATEWIDE TECHNICAL ASSISTANCE

Project: FW-7-R-6 **Title:** Magic Valley Region Technical Assistance

Subproject No.: II **Job No.:** 4

Period Covered: July 1, 1999 - June 30, 2000

ABSTRACT

The Magic Valley Region Environmental Staff Biologist provided comment, technical review, and support on approximately 342 occasions to other federal, state, local governments, individuals, and private organizations. Technical assistance was provided by way of verbal or written comments, meeting notes, and technical publications. Most comments were accompanied by recommendations to minimize or mitigate for direct impacts to fish and wildlife or their habitat.

Water quality and quantity, livestock grazing, and federal land management issues constituted the majority of activities evaluated. All actions were coordinated and reviewed with the appropriate regional staff and state office personnel for accuracy, thoroughness, and adherence to Idaho Department of Fish and Game (IDFG) policy.

Author:

David E. Parrish
Environmental Staff Biologist

OBJECTIVES

To provide and coordinate fish and wildlife related technical assistance and comment to other government agencies (state, federal, and local), organizations, or private individuals. Also, to fulfill IDFG's responsibility to coordinate with "sister" state of Idaho agencies such as Division of Environmental Quality (IDEQ), Idaho Department of Lands (IDL), Idaho Department of Transportation (IDT), and Idaho Department of Water Resources (IDWR) in the collection of fish and wildlife population status and habitat data along with providing technical feedback on water quality.

METHODS

The Magic Valley Region Environmental Staff Biologist used numerous "tools" to form comment and furnish recommendations on a variety of land and water management proposals. State office and regional staff, field inspections, literature searches, resource professionals from other agencies, and professional expertise were some of the sources used, in conjunction with IDFG policy, to formulate responses.

RESULTS

The majority of input provided by the Environmental Staff Biologist is to other state, federal, and local government agencies. The following is a breakdown of entities that were provided technical guidance, either through on-site meetings or project review by the environmental staff biologist. Each contact represents a meeting or written response:

U.S. Forest Service (USFS)	30
Bureau of Land Management (BLM)	42
National Parks Service (NPS)	5
U.S. Fish and Wildlife Service (USFWS)	13
U.S. Army Corps of Engineers (COE)	13
Federal Energy Regulatory Commission (FERC)	7
United States Air Force (USAF)	3
Bureau of Reclamation (BOR)	4
Natural Resource Conservation Service (NRCS)	7
Idaho Dept. of Water Resources (IDWR)	93

Idaho Dept. of Health and Welfare	
Division of Environmental Quality (DEQ)	15
Animal and Plant Health Inspection Service (APHIS)	6
Idaho Dept. of Lands (IDL)	3
Idaho Dept. of Transportation (IDT)	15
County/City Government/Private Development	44
Idaho Power Company (IPCO)	31
Region 4 Economic Development	11
Total	<hr/> 342

MAJOR PROJECTS OF INTEREST

Hydropower

IPCO Middle Snake River Hydropower projects (Upper Salmon, Lower Salmon, Bliss, Shoshone Falls, and Malad projects) relicensing continued during 1999 and 2000. Ongoing review of additional information requests (AIRs) and response to further FERC mandated studies required coordination of fish and wildlife staff review and comment. Documents reviewed included AIRs for load following impacts on aquatic and terrestrial wildlife, water quality monitoring, minimum flows, and economic impacts of the hydropower projects.

All final correspondence was routed through the appropriate personnel in Natural Resource Policy Bureau or the regional supervisor for signature.

Document review, agency meetings, technical workshops, on-site reviews or inspections, and drafting of comments were conducted during the year for the following projects:

Name (Federal Energy Regulatory Commission Number)

Upper Salmon Falls (2777)	Lower Salmon Falls (2061)
Bliss (1975)	Shoshone (2778)
Sahko (11060)	Fisheries Development (7885)
Auger Falls (4797)	Shorock (9967)
Koyle Ranch (4052)	Ravenscroft (4055)
Milner (2899)	Malad (2726)
Slaughterhouse Gulch (6375)	Y8 Project (6630)
Twin Falls (18)	Little Mac (6443)

Most responses dealt with review of compliance reports while the Y8 Project required review of a decommissioning plan.

Water Quality Related Activities

The Environmental Staff Biologist continued to participated on technical assistance committees (TACs) for the Wood River, Rock Creek (Mid-Snake River), Walcott, Southwest Basin Native Fish, and Bruneau Watershed Advisory Groups (WAGs). Subbasin Assessments were completed and submitted to EPA for Rock Creek and Walcott on December 31, 1999 while the Wood River and Bruneau are due at the end of 2000. Total Maximum Daily Loads (TMDLs) are still being developed for each of the drainages.

IDFG management staff is providing fish population trend and habitat data to DEQ as it becomes available.

Coordination, training, and field participation with DEQ Beneficial Use Reconnaissance personnel was performed during the year. Fisheries data collected by DEQ will be summarized in the Magic Valley Region Fisheries Management Federal Aid Report for the period July 1999 to June 2000.

The Environmental Staff Biologist continued providing technical assistance on wetland development projects within the region. Two research proposals were evaluated for the jointly operated Cedar Draw Research and Demonstration facility while new facilities were designed and constructed, working with the North Side Canal Company at Niagara Springs.

Fisheries Mitigation

Little Wood River – Richfield to Shoshone, Idaho: An inventory of fish movement barriers was begun in the Little Wood River system in 2000.. This is an ongoing project to restore reproducing populations of both native and non-native fish populations within the reach after a 1998 ammonia release. Initial reconnaissance was conducted in the fall of 1999 with physical surveys planned for the fall 2000.

Minidoka Dam Restoration – An agreement was reached between BOR and IDFG to place \$300,000 in a trust to help offset IDFG costs to stock rainbow trout in Lake Walcott. This was to mitigate for impacts of the construction of a new powerhouse on Minidoka Dam.

Feather River Culvert Modification – In response to the Southwest Basin Native Fish WAG recommendation to remove or modify the main highway culverts on the Feather River at Featherville, technical assistance on construction of drop structures, revegetation, and monitoring was provided during the year. With a grant from the USFWS, a culvert ladder was installed in one of the three culverts and three-drop structures were placed below the passage barrier. Benefits to bull trout and other native fish are expected. Monitoring and minor maintenance will continue during the coming year.

Bull Trout Conservation Plan

IDFG Environmental Staff Biologists and DEQ continue to work closely with the Southwest Basin Native Fish WAG. Emphasis during the year included technical review and recommendations on recovery measures for de-listing of bull trout and filling data needs for the coming year.

Urban Development

Again this year, technical assistance was provided to state and local governments on ways to minimize fish and wildlife impacts from urban growth and infrastructure improvements. Blaine, Camas, Jerome, Twin Falls, Elmore, Gooding, and Minidoka counties along with the cities of Twin Falls, Jerome, Bliss, Glenns Ferry, and Malta all submitted proposals for review. The Environmental Staff biologist responded to or solicited appropriate staff input to address pertinent fish and wildlife related habitat issues. Blaine County led the way with 14 new proposed subdivisions on which comments were filed with Planning and Zoning.

The environmental staff biologist also participated as an invited member of the Snake River Canyon Bridge Crossing Committee TAC, Wendell to Buhl, Idaho Corridor Study TAC, and Jerome County Rim Committee. The first two committees were designed to provide initial consultation on fish and wildlife impacts while the latter committee was charged with drafting an ordinance to protect natural resources and aesthetic beauty along the Snake River rim.

Land Management Activities

BLM request for comment on the issuance of temporary non-renewable AUMs, grazing season extensions, grazing allotment evaluations and renewals, and fire rehabilitation efforts constituted the majority of contacts. Conflicts with hunting activities, critical winter wildlife areas, water

quality as it relates to riparian health, and use of native plant materials for range rehabilitation were the most common items discussed.

Technical assistance was also provided to the BLM and APHIS in preparation for a potential infestation of grasshoppers and mormon crickets during the summer of 2000. Critical upland bird habitat and treatment windows were identified in a proactive attempt at insect control with minimal impacts to fish and wildlife.

The National Parks Service proposed additional protection for approximately 400,000 acres of unique lava flows associated with the existing Craters of the Moon National Monument. Technical information on impacts to hunting and trapping were provided to the NPS and BLM.

On-going development of the USAF Juniper Butte training range resulted in participation on several committees tasked with writing an Integrated Resource Management Plan. Specific groups that the Environmental Staff Biologist participated on included range impacts to sage grouse, fire control, restoration of vegetation, grazing, and sound impacts on wildlife.

Level 1 Team Participation

The Magic Valley Region Environmental Staff Biologist, as part of the joint state-federal Level 1 Team, participated in meetings and field review sessions designed to evaluate project impacts on habitat and populations for plants and animals given special status designation. Primary focus was on populations associated with the federal Endangered Species Act (ESA).

Approximately 30 projects were reviewed or visited during the year. Mitigation and conformance to USFWS biological opinions were suggested and documented to streamline consultation requirements under the ESA.

Projects reviewed during the reporting period included, bridge replacements, new trail construction, mining activities, placement of elk feed sites, water diversions, and vegetative management projects.

Aquifer Recharge

Technical assistance was again provided to BOR and IDWR on aquifer recharge. Flow volume, timing, and monitoring were the key elements of information provided as it related to completion of their Aquifer Recharge Feasibility Study.

Acknowledgments

It's important to note that with the massive amount of demand placed on input from IDFG, local knowledge of the resources is critical to providing the best possible response for conservation of fish and wildlife. Much of the knowledge behind the responses comes from local conservation officers, wildlife habitat biologists, wildlife population biologists, fisheries management personnel, regional supervisor, key members of the public, and resource specialists with other local agencies. Without the support and assistance provided by all of these individuals, the workload for this position would be insurmountable.

JOB PERFORMANCE REPORT

State of: Idaho **Name:** STATEWIDE TECHNICAL ASSISTANCE

Project: FW-7-R-6 **Title:** Southeast Region Technical Assistance

Subproject: II **Job No.:** 5

Period Covered: July 1, 1999 to June 30, 2000

ABSTRACT

The Southeast Region Environmental Staff Biologist (ESB), with support from wildlife, fisheries, habitat, and enforcement staff, provided technical assistance to public and private organizations in the form of field inspections, meeting attendance, project document reviews, and written response on about 270 occasions. The largest issues in the Southeast Region during FY 2000 included Bear River re-licensing, selenium/phosphate mining, the planning process on the Caribou National Forest and the Curlew National Grasslands, Forest Service prescribed burns, BLM grazing allotment renewals, and a variety of proposed stream alteration activities. Underlying these issues is the potential ESA listing of the sage grouse and Bonneville and Yellowstone cutthroat trout. In addition, population expansion from the Wasatch Front in Utah continues to impact winter range and other important wildlife habitats in southern counties. The Idaho Department of Fish and Game (IDFG) continues to identify key wildlife areas, review proposed subdivisions and other commercial developments, and provide recommendations to counties to protect important wildlife habitats. The ESB has been actively involved in local watershed groups, including those on the Portneuf, Blackfoot, Bear, and Cub rivers. These local groups continue to search for solutions for water quality and related aquatic biota problems in each of these watersheds.

Author:

H. Jerome Hansen
Environmental Staff Biologist

Numerous meetings and related conference calls have been attended. Annual reports and work plans have been reviewed.

The ESB has also been actively involved in the development of the Dry Valley Mine wetland mitigation package, which includes the purchase of wetlands near Soda Springs and the development of a Trust Fund to implement wetland projects in the upper Blackfoot River in perpetuity. The ESB has also participated in field review and related meetings on the proposed Smoky Canyon Mine expansion.

Bear River Hydro Re-licensing

Pacificorp operates four Bear River hydroelectric projects that initiated the Federal Energy Regulatory Commission (FERC) re-licensing process in 1995. The projects include Oneida, Soda Point, and Grace/Cove (two projects that operate under one license). Current project licenses will expire on October 1, 2001. Several miles of the Bear River have been de-watered over the last several decades by operation of the hydroelectric system. The ESB has worked with personnel from the IDFG and other agencies to respond to FERC's request for Additional Information Requests (AIRs). We have also attended meetings and held discussions with PacifiCorp on the potential development of a settlement package. The Bonneville cutthroat trout historically ranged throughout the Bear River and tributaries. Its range has declined due to past land use practices and a loss of connectivity from dams, irrigation diversions, and inadequate water quantity and quality. It has recently been petitioned to be listed under the Endangered Species Act. One of IDFG's primary goals is to achieve adequate minimum flows in all sections of the river, in addition to reduced ramping rates, tributary and riparian enhancements, and arrangements for future mainstem passage as needed.

Caribou National Forest Plan Amendments

The Caribou National Forest has continued plan amendment processes on both the Curlew National Grasslands and the rest of the Caribou National Forest. The relationship between sage grouse habitat and grazing and prescribed burning practices on the Curlew continues to be one of the key issues. The ESB is working closely with other IDFG staff to ensure that sage grouse habitat is protected and improved in the future. Primary issues on the rest of the Caribou National Forest include on-going prescribed burning practices and future timber harvest, livestock grazing, road density and associated impacts on cutthroat trout, big game, sage grouse, and other wildlife species.

Planning and Zoning

People continue to move into Bear Lake, Franklin, and Oneida counties to escape the higher costs and crowding in northern Utah along the Wasatch Front. The ESB, in coordination with other IDFG staff, prepared and provided an Arc View map of important wildlife habitats to Franklin County. The ESB has provided recommendations on a number of proposed subdivisions impacting big game winter range and other wildlife habitat. IDFG comments have continued to point out to county personnel and the public that each approved rural subdivision and homesite permanently reduces the long-term capability of the county to support fish and wildlife populations. We have continued to suggest the use of clustering, conservation easements, and other planning and implementation tools to protect key fish and wildlife habitats.

Idaho Department of Transportation

The ESB has been involved in numerous bridge replacement and road modification projects in the last year. Plans to widen U.S. 89 between Montpelier and Geneva continue. IDT is beginning planning for the long-term, widening U.S. 30 (from McCammon to the Wyoming border) and U.S. 91 (from Downey to the Utah border). At least portions of both roads will be expanded into four-lane highways. Issues surrounding all of these projects include wetland impacts, big game migration barriers and direct mortality from collisions, direct loss of wildlife habitat, water quality and fisheries impacts (including potential loss of connectivity from culverts), and floodplain encroachment and subsequent stream constrictions from the road fill. Indirect impacts include the additional expansion of rural subdivisions and homesites into big game winter range and other important fish and wildlife habitats, brought on by wider roads and quicker travel times from urban areas. Implementation of adequate mitigation continues to be a challenge. IDT has little interest or apparent responsibility to mitigate for terrestrial losses associated with highway projects. We have worked on the development of a mitigation trust in association with a proposed dike project along the Snake River. Funds would be invested and the principle and/or interest would be used to implement wetland projects in identified areas. Specifics are delineated in a draft Memorandum of Understanding (MOU) between the IDFG, IDT, Federal Highway Administration, and COE.

Managed Recharge

As part of conjunctive management of groundwater and surface water in the Snake River Basin, the IDWR has been exploring the concept of diverting Snake River flows at various locations

above Thousand Springs, in order to help re-charge the aquifer. Because existing canals must be used, diversions are proposed to take place in the winter months, at the time of year the canals are not being used for irrigation. Diversions are being proposed near Hells Half Acre, which will reduce winter flows in the stretch of the Snake River above American Falls Reservoir. Adequate winter flows are essential to juvenile trout survival. We continue to work with IDWR on identification of flows needed to ensure that the aquatic community is protected in the Snake River.

BLM Grazing Allotment Renewal

The Bureau of Land Management (BLM) continues to renew grazing allotments across southeast Idaho and other areas of the state. Renewals follow a field evaluation in each allotment, which is intended to accurately illustrate current conditions and how each allotment is meeting BLM developed standards and guidelines. Key issues include the current condition of riparian areas, canyon bottoms, aspen habitats, other native upland vegetation species, and subsequent proposed changes in livestock numbers, changes in duration, or changes in distribution from fences or herding. Other issues include long-term monitoring plans and enforcement criteria. The ESB, in coordination with other regional personnel, has assisted with field data collection and provided comments on key allotment renewal documents. Concerns include long-term impacts to Bonneville or Yellowstone cutthroat trout, sage and sharptail grouse breeding and wintering habitat, big game fawning/calving habitat, big game winter habitat, and long-term impacts to all fish and wildlife species.

Committee Participation

The Southeast Region ESB participated on and cooperated with the following committees:

- Portneuf River Watershed Council
- Bear River Basin Advisory Group
- Blackfoot River Watershed Council
- Cub River Technical Advisory Committee
- Mining Industry and Interagency Selenium Working Group
- Selenium Steering Committee
- IDT Merger Process Team
- Caribou National Forest Section 7 Streamlining Group
- Bear River Relicensing Interagency Group
- City of Pocatello Highway Pond Working Group

Senate Bill 1284 Implementation

Implementation of SB 1284 established Basin Advisory Groups (BAGs) for the Bear and Upper Snake rivers. Blackfoot and Portneuf watershed groups have developed and are active in reviewing and prioritizing 319 (water quality improvement) projects. The Cub River Technical Advisory Committee formed in the last year to leverage 319 monies and improve water quality and beneficial uses in the Cub River. The ESB regularly attended the watershed meetings and provided technical assistance.

JOB PERFORMANCE REPORT

State of: Idaho **Name:** STATEWIDE TECHNICAL ASSISTANCE

Project: FW-7-R-6 **Title:** Upper Snake Region Technical Assistance

Subproject: II **Job No.:** 6

Period Covered: July 1, 1999 to June 30, 2000

ABSTRACT

During the period covered by this report, the Upper Snake Region Environmental Staff Biologist provided comment, technical review, and support on approximately 520 occasions to federal and state agencies, local governments, individuals, and private organizations. Assistance included both written and verbal conveyance of anticipated effects to fish and wildlife populations or their associated habitats and recommendations to minimize or mitigate impacts.

Significant activities that required extensive amounts of time included: participation with the stream channel alteration and wetland fill processes, coordination of hydropower-related reviews, new water rights and transfers, aquifer recharge, Snake River Resources Review, reservoir and river flow management, transportation projects, and other state and federal land management activities. Activities were coordinated and reviewed with the appropriate regional staff and state office personnel for accuracy, thoroughness, and adherence to Idaho Department of Fish and Game (IDFG) policies.

Author:

Robert C. Martin
Environmental Staff Biologist

OBJECTIVES

Provide and coordinate fish and wildlife related technical assistance and comment to other government agencies (state, federal, and local), organizations, and private individuals. Protect and/or enhance fish and wildlife habitat.

METHODS

Document review, literature research, field inspection, and consultation with appropriate policy, management, and research personnel were used to provide comments and recommendations on actions proposed by private entities, local governments, and state and federal agencies.

RESULTS

The Upper Snake Region Environmental Staff Biologist provided reviews and comments for the following entities on the listed number of occasions. Each contact represents a meeting or written response:

U.S. Forest Service (USFS)	34
Bureau of Land Management (BLM)	23
National Park Service (NPS)	2
U.S. Fish and Wildlife Service (USFWS)	5
U.S. Army Corps of Engineers (COE)	50
Federal Energy Regulatory Commission (FERC)	22
Bonneville Power Administration (BPA)	7
Bureau of Reclamation (BOR)	35
Environmental Protection Agency (EPA)	4
Natural Resource Conservation Service (NRCS)	3
Idaho Dept. of Water Resources (IDWR)	147
Idaho Division of Environmental Quality (DEQ)	27
Idaho Dept. of Lands (IDL)	5
Idaho Transportation Dept. (ITD)	35
Idaho Dept. of Fish and Game (IDFG)	40
County/City Government/Private	80
Total	519

MAJOR PROJECTS

Major projects worked on included IDWR's managed recharge proposals; USBR's Snake River Resources Review; Fremont-Madison Irrigation District's request to obtain title to Island Park Dam; recommendations for flows on the Henrys Fork and South Fork Snake River; flow, temperature, and monitoring recommendations for Island Park Dam and the spillway modification project; Bonneville Power Administration's Palisades wildlife mitigation program; bull trout planning including completion of Little Lost TMDL Plans; Targhee National Forest revised travel plan maps; Henrys Fork Watershed Council coordination; and completing a paper for the Intermountain Journal of Science titled "Interactions Among Aquatic Vegetation, Waterfowl, Flows, and the Fishery Below Island Park Dam."

Submitted by:

Will Reid
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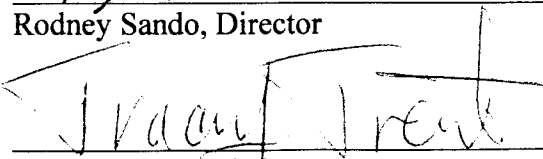
H. Jerome Hansen
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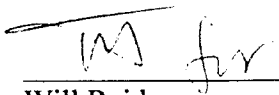
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